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ELECTRONIC SPACE SYSTEMS CORP CONCORD MA*

F/G 17/9

FINAL ELECTROMAGNETIC TEST REPORT FOR THE M10-76-8000 RADOME WI--ETC(U)

AUG 81

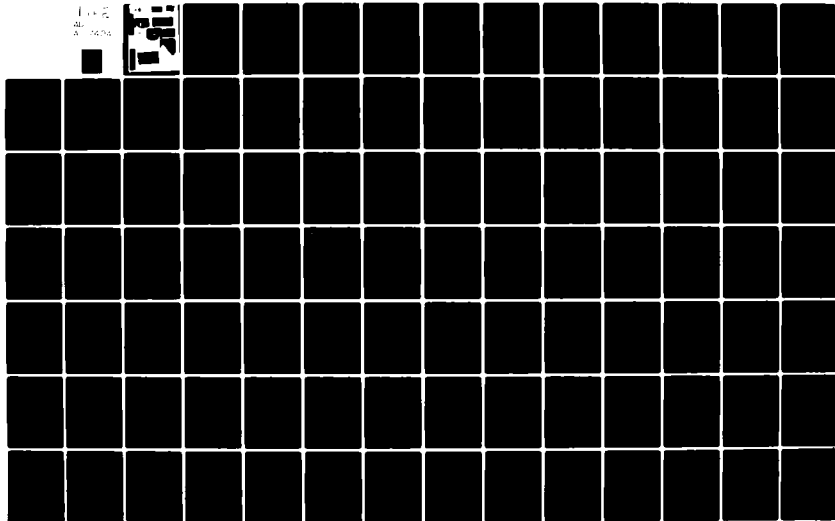
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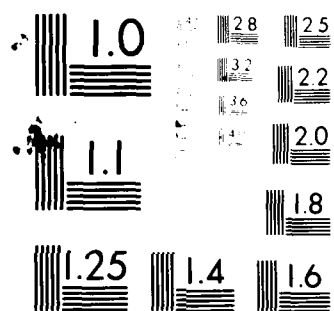
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MICROCOPY RESOLUTION TEST CHART
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TEST REPORT TR81-8
6 FINAL ELECTROMAGNETIC TEST REPORT
FOR THE
M19-76-8000 RADOME WITH XP PLATES.

Prepared For

Naval Research Laboratory
Washington, D.C. 20375

11 Aug 81

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Contract No. N000173-80-C-0345

ESSCO JOB NO. 1886

15 233/

AUG. 1981

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INITIAL RELEASE

Prepared by: Richard L. Date: 15 Oct 81

Approved by: H. Angew Date: 15 Oct 89

REVISION STATUS OF SHEETS

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INTRODUCTION

Electromagnetic tests were conducted to evaluate the performance of the M10-76-8000 Radome fitted with special XP plates supplied by the Navy. The tests were run during the last two weeks of August, 1981. The type of tests, equipment employed, test setups and recorded data are contained in Appendix A. Appendix B contains a list of all chart recordings and a copy of all recordings.

TRANSMISSION LOSS

The transmission loss of the radome was measured by two methods. First, the loss of the radome without the XP plates was measured and found to be 0.6 dB. One-half of the radome was then covered with the plates, the radome rotated in azimuth and the additional loss in the XP plate area recorded.

The second method consisted of establishing a reference level without the radome and then positioning the complete radome (all XP plates installed) over the antenna. The radome was then rotated 360° in azimuth and the variability in loss recorded.

In the first method, the following results were recorded.

| | <u>Space Frame Alone</u> | <u>Additional Loss in XP Plate Area</u> | <u>Total Loss</u> |
|-----------|------------------------------|---|-------------------|
| Low Band | 0.6 dB | 0.3 to 0.6 dB | 0.9 to 1.2 dB |
| Mid Band | 0.6 dB | 0 to 0.55 dB | 0.6 to 1.15 dB |
| High Band | 0.6 dB | 0.3 to 0.9 dB | 0.9 to 1.5 dB |

The results are recorded on patterns numbered 69, 70 and 71.

In the second method, the recorded loss was:

| | <u>Transmission Loss</u> | <u>Variability</u> |
|-----------|--------------------------|--------------------|
| Low Band | 1.1 dB | ±0.25 dB |
| Mid Band | 1.2 dB | ±0.35 dB |
| High Band | 1.5 dB | ±0.35 dB |

Recorded data is shown on patterns 16, 17, 18 and 19 for low band; on patterns 38, 39, 40 and 41 for mid band; and on patterns 60, 61, 62 and 63 for high band.

Due to the variability in loss as a function of radome azimuth rotation, the maximum loss recorded is dependent upon the radome/antenna look angle. As this angle was not noted during the measurements, the results of the tests using the first method are probably more representative of the actual loss through the radome.

The transmission loss was somewhat higher than predicted in the design analysis. The thickness and variation in thickness of the XP plates should be measured. Electrical tests should also be conducted to determine if the loss of the plates is indeed a contributing factor in the higher loss values measured.

3.0 SIDELobe PERTURBATION

With the antenna enclosed by the radome, 12 different antenna/radome orientations were measured at each of the three test frequencies. The antenna was measured without the radome and the change in sidelobe levels noted. On the data sheets (Appendix B), an increase in sidelobe level is prefixed by a (+) and a decrease in sidelobe level prefixed by a (-). Each antenna pattern was measured with a recorder chart speed of 90 degrees and 18 degrees per chart cycle. In addition, an antenna pattern was measured at each test frequency (with and without radome) using a chart speed of 360 degrees per chart cycle to investigate far out sidelobes. All levels were below -38 dB except for some extraneous signal levels which were present with and without radome and were marked with an (x) on the recorded data.

At the start of the measurement program, XP plates were installed in one-half of the radome. Antenna patterns were recorded at mid band for the section of the radome with the plates and also for the section of the radome without the plates. This data is shown in patterns numbered 67 and 68.

4.0 BEAM WIDTH CHANGE

The change in the 3 dB beam width due to the presence of the radome was determined by noting the change on the expanded (18 degrees per chart cycle) antenna patterns. The data is summarized on a Data Sheet (Figure 4). At low band, an average increase in beam width of about 9% was noted. At mid band, the increase in beam width was 3%; and at high band, the increase was about 6%.

5.0 ANTENNA BEAM SYMMETRY

The change in main beam symmetry or beam skew due to the presence of the radome was measured in the following manner. First, the expanded (no radome) antenna main beam pattern was bisected at a level of -3 dB from peak gain. The main beam was then bisected at the -16 dB level and the change in angle was noted as beam skew. The no radome antenna pattern beam skew was compared to the recorded antenna skew of all patterns measured when enclosed by the radome. All of the data was tabulated in the data sheet for Beam Symmetry (Figure 5).

6.0 BORESIGHT ERROR

Boresight error measurements were made by calibrating the error slope of a monopulse feed in 0.1 milliradian increments and then

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rotating the radome for 360 degrees. Measurements were made at -20 degrees, 0 degrees and +20 degrees elevation angles of the radome. The data is tabulated in the data sheet for boresight measurements (Figure 7).

Generally, the loss variation through the radome is small and its effect on the boresight error measurement negligible. However, for variations of about 0.5 dB, approximately 0.1 milliradian can be attributed to the loss variation and can be subtracted from the peak boresight error recorded.



APPENDIX A

DOCUMENT D81-31

ELECTROMAGNETIC QUALIFICATION TEST PLAN
FOR THE
M10-76-8000 RADOME WITH XP PLATES



DOCUMENT D81-31
ELECTROMAGNETIC QUALIFICATION TEST PLAN
FOR THE
M10-76-8000 RADOME WITH XP PLATES

Prepared For

Naval Research Laboratory
Washington, D.C. 20375

Contract No. N000173-80-C-0345

ESSCO JOB NO. 1886

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Concord, MA 01742
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| INITIAL RELEASE | |
|---------------------------------------|------------------|
| Prepared by: <i>Andrew Lee</i> | Date: 29 July 81 |
| Approved by: <i>J. J. [Signature]</i> | Date: 30 July 81 |

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1.0 INTRODUCTION

Electromagnetic tests will be conducted to evaluate the electromagnetic performance of the M10-76-8000 Radome with XP Plates. The radome mounting fixture will allow the radome to be rotated continuously in azimuth and will also allow the radome to be incrementally positioned through a range of approximately ± 25 degrees in elevation. The following tests will be performed at ESSCO's Electromagnetic Test Facility in Concord, Massachusetts.

2.0 TRANSMISSION LOSS

2.1 Objective

The purpose of this test is to measure the one-way transmission loss through the radome at various radome/antenna look angles.

2.2 Conditions

2.2.1 All tests will be performed at prevailing atmospheric conditions at the ESSCO Test Facility in Concord, Massachusetts.

2.2.2 The equipment will be set up as shown in Figure 1 and allowed to warm up for 30 minutes.

2.3 Test Equipment List

2.3.1 The following test equipment or equivalent will be used for the transmission loss measurements.

- 2.3.1.1 Transmitting Antenna, DICO Model 18", X-Band, L.P. Feed
- 2.3.1.2 Precision Attenuator, H.P. No. X382A
- 2.3.1.3 Signal Source, Alfred No. 650, X-Band
- 2.3.1.4 Gain Standard, DICO No. 14-849
- 2.3.1.5 Frequency Meter, H.P. No. X532B
- 2.3.1.6 Attenuator, PRD No. 195B
- 2.3.1.7 Crystal Mixer, S.A. No. 14-4
- 2.3.1.8 Receiver, S.A. No. 1770
- 2.3.1.9 Recorder, S.A. No. 1580
- 2.3.1.10 Positioner Control, S.A. No. PC4
- 2.3.1.11 Azimuth Positioner, S.A. No. PA44C
- 2.3.1.12 Positioner Control B.G. No. RP1R
- 2.3.1.13 Radome Positioner, ESSCO No. T1866
- 2.3.1.14 Ratiometer, S.A. No. 1833A-20
- 2.3.1.15 Test Antenna, Lockheed No. 7-8A-1000



2.4 Test Description

2.4.1 The transmitting antenna and test antenna will be aligned for maximum signal.

2.4.2 Calibration marks will be made on the pattern recorder paper at 0.5, 1.0, 1.5 and 2.0 dB using the precision attenuator.

2.4.3 The recorder chart speed will be set to 360° per chart cycle.

2.5 Measurements

2.5.1 The radome will be positioned over the test antenna at three elevation angles, -20°, 0° and + 20°. At each position, continuous transmission loss measurements (360° in azimuth) will be recorded on the antenna pattern recorder.

2.5.2 Three frequencies will be used at each elevation angle designated at "low", Mid" and "high."

2.6 Data Sheet

2.6.1 The recorded transmission loss data will be summarized and presented on a data sheet as shown in Figure 2.

3.0 SIDELOBE PERTURBATION

3.1 Objective

The purpose of this test is to measure the change in antenna sidelobes due to the presence of the radome.

3.2 Conditions

3.2.1 All tests will be performed at prevailing atmospheric conditions at the ESSCO Test Facility in Concord, Massachusetts.

3.2.2 The equipment will be set up as shown in Figure 1 - Transmission Loss Measurements and allowed to warm up for 30 minutes.

3.3 Test Equipment List

3.3.1 The test equipment for the sidelobe measurements will be identical to that used for the transmission loss measurements, paragraph 2.3.

3.4 Test Description

3.4.1 The transmitting antenna and test antenna will be aligned for maximum signal. A reference antenna pattern will be recorded without the radome.



3.4.2 Calibration marks will be made on the antenna pattern recorder paper at 3.0, 10.0, 20.0, and 30.0 dB using the precision attenuator.

3.4.3 The recorder chart speed will be set to 90° and 18° per chart cycle.

3.5 Measurements

3.5.1 The radome will be positioned over the test antenna at 3 elevation angles as listed in paragraph 2.5.1. At each elevation angle, the radome will be rotated in azimuth to four discrete positions separated by 90° and the antenna pattern recorded.

3.5.2 Three frequencies will be used at each radome/antenna orientation designated as "low", "mid" and "high."

3.6 Data Sheet

3.6.1 The recorded sidelobe measurements will be summarized and presented on a data sheet as shown in Figure 3.

4.0 BEAM WIDTH CHANGE

4.1 Objective

The purpose of this test is to measure the change in beam width of the test antenna due to the presence of the radome.

4.2 Conditions

4.2.1 All tests will be performed at prevailing atmospheric conditions at the ESSCO Test Facility in Concord, Massachusetts.

4.2.2 The equipment will be set up as shown in Figure 1 - Transmission Loss Measurement and allowed to warm up for 30 minutes.

4.3 Test Equipment List

4.3.1 The test equipment for the beam width measurements will be identical to that used for the transmission loss measurements, paragraph 2.3.

4.4 Test Description

4.4.1 The transmitting antenna and test antenna will be aligned for maximum signal.

4.4.2 Calibration marks will be made on the antenna pattern recorder paper at 3.0, 10.0, 20.0 and 30.0 dB.



4.4.3 The recorder chart speed will be set to 18° per chart cycle.

4.5 Measurements

4.5.1 The radome will be positioned over the test antenna at 3 elevation angles as listed in paragraph 2.5.1. At each elevation angle, the radome will be rotated in azimuth to four discrete positions separated by 90° and the antenna pattern recorded.

4.5.2 Three frequencies will be used at each radome/antenna orientation designated as "low", "mid" and "high."

4.6 Data Sheet

4.6.1 The recorded sidelobe measurements will be summarized and presented on a data sheet as shown in Figure 4.

5.0 ANTENNA BEAM SYMMETRY

5.1 Objective

The purpose of this test is to measure the change in antenna main beam symmetry due to the presence of the radome.

5.2 Conditions

5.2.1 All tests will be performed at prevailing atmospheric conditions at the ESSCO Test Facility in Concord, Massachusetts.

5.2.2 The equipment will be set up as shown in Figure 1 - Transmission Loss Measurement and allowed to warm up for 30 minutes.

5.3 Test Equipment List

5.3.1 The test equipment for the beam width measurements will be identical to that used for the transmission loss measurements, paragraph 2.3.

5.4 Test Description

5.4.1 The transmitting antenna and test antenna will be aligned for maximum signal.

5.4.2 Calibration marks will be made on the antenna pattern recorder paper at 3.0, 10.0, 20.0 and 30.0 dB.

5.4.3 The recorder chart speed will be set to 18° per chart cycle.



5.5 Measurements

5.5.1 The radome will be positioned over the test antenna at 3 elevation angles as listed in paragraph 2.5.1. At each elevation angle, the radome will be rotated in azimuth to four discrete positions separated by 90° and the antenna pattern recorded.

5.5.2 Three frequencies will be used at each radome/antenna orientation designated as "low", "mid" and "high."

5.6 Data Sheet

5.6.1 The recorded sidelobe measurements will be summarized and presented on a data sheet as shown in Figure 5.

6.0 BORESIGHT ERROR

6.1 Objective

The purpose of this test is to measure the antenna boresight error due to the presence of the radome.

6.2 Condition

6.2.1 All tests will be performed at prevailing atmospheric conditions at the ESSCO Test Facility in Concord, Massachusetts.

6.2.2 The equipment will be set up as shown in Figure 6 and allowed to warm up for 30 minutes.

6.3 Test Equipment List

6.3.1 The following test equipment, or equivalent, will be used for the boresight error measurements.

- 6.3.1.1 Transmitting antenna, DICO Model 18", X-Band, L.P. Feed
- 6.3.1.2 Precision Attenuator, H.P. No. X382A
- 6.3.1.3 Signal Source, Alfred No. 650, X-Band
- 6.3.1.4 Gain Standard Horn, DICO No. 14-849
- 6.3.1.5 Frequency Meter, H.P. No. X532B
- 6.3.1.6 Attenuator, PRD No. 195B
- 6.3.1.7 Crystal Mixer, SA No. 14-4
- 6.3.1.8 Receiver, SA No. 1770
- 6.3.1.9 Boresight Recorder, SA No. BSR



- 6.3.1.10 Positioner Control, ESSCO No. ATR10
- 6.3.1.11 Boresight Positioner, ESSCO No. 10710
- 6.3.1.12 Ratiometer, SA No. 1833A-20
- 6.3.1.13 Test Antenna, Lockheed No. 7-8A-1000

6.4 Test Description

6.4.1 The transmitting antenna and test antenna will be aligned for maximum signal with the antenna covered by the radome.

6.4.2 The test antenna will then be moved in azimuth with the precision positioner, and the error slope of the main beam calibrated in 1-milliradian steps of angular movement.

6.4.3 The position of the antenna will be adjusted so that a 0.1 milliradian displacement is easily discernible.

6.4.4 The recorder chart speed will be set to 360° per chart cycle.

6.5 Measurements

6.5.1 The radome will be positioned over the test antenna at 3 elevation angles, -20°, 0°, and +20°. At each position, continuous boresight error measurements (360° in azimuth) will be recorded on the boresight recorder.

6.5.2 Three frequencies will be used at each elevation angle designated as "low," "mid" and "high."

6.6 Data Sheet

6.6.1 The recorded boresight error measurements will be summarized and presented on a data sheet as shown in Figure 7.

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DATE: _____

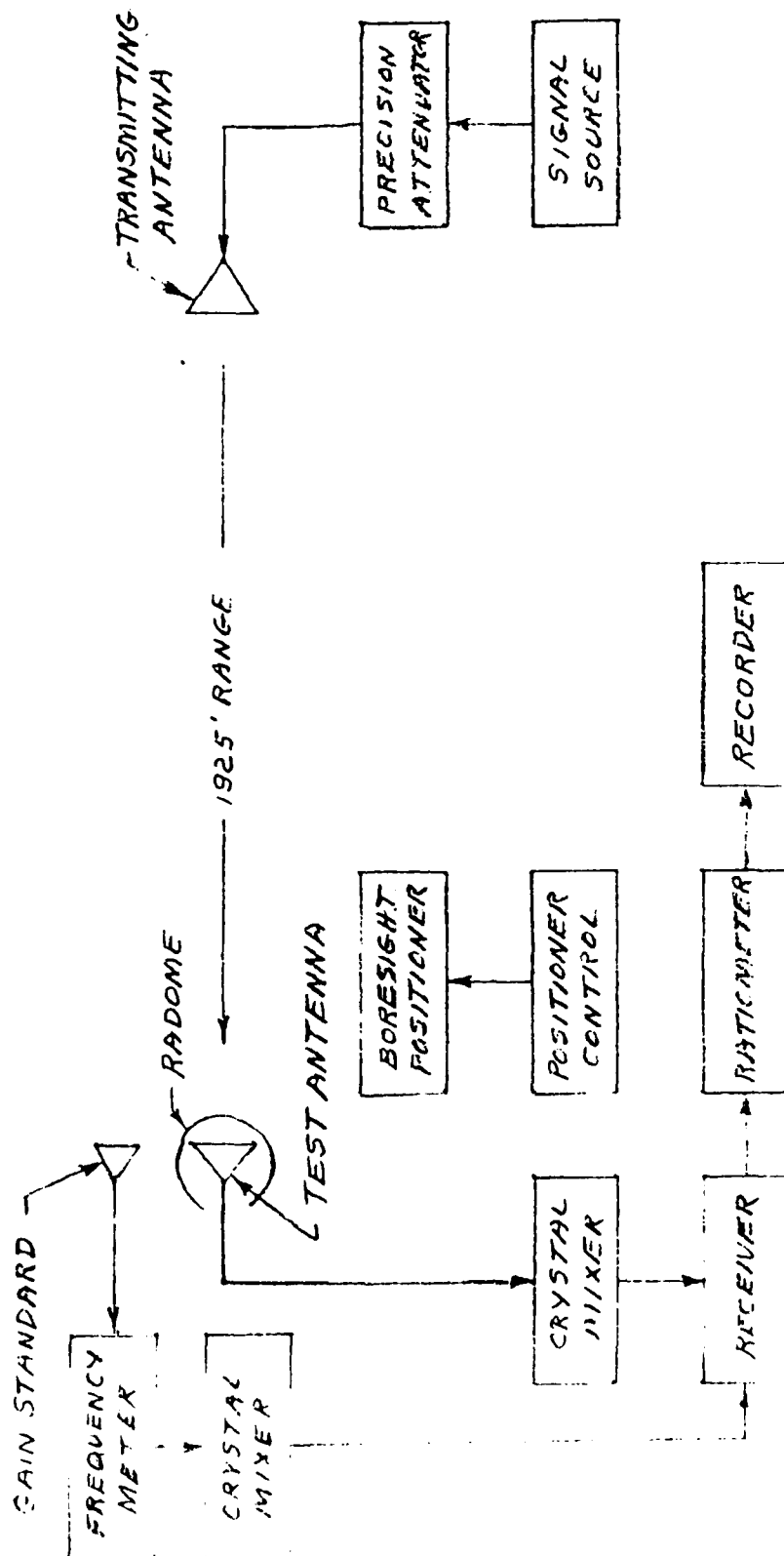
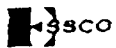


FIGURE 1 - EQUIPMENT USED FOR TRANSMISSION LOSS MEASUREMENT



DATA SHEET

Procedure No. 2.0
Title: Transmission Loss
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APS RF TC Date: 25 AUG 81

TEST RESULTS

Frequency - Low Band

| Elevation Angle | Transmission Loss in dB | Specification Limit |
|-----------------|-------------------------|---------------------|
| -20° | 1.10 ± 0.30 dB | N/A |
| 0° | 1.10 ± 0.25 dB | N/A |
| +20° | 1.10 ± 0.25 dB | N/A |

Frequency - Mid Band

| Elevation Angle | Transmission Loss in dB | Specification Limit |
|-----------------|-------------------------|---------------------|
| -20° | 1.20 ± 0.35 dB | N/A |
| 0° | 1.20 ± 0.35 dB | N/A |
| +20° | 1.20 ± 0.30 dB | N/A |

Frequency - High Band

| Elevation Angle | Transmission Loss in dB | Specification Limit |
|-----------------|-------------------------|---------------------|
| -20° | 1.50 ± 0.4 dB | N/A |
| 0° | 1.50 ± 0.35 dB | N/A |
| +20° | 1.50 ± 0.35 dB | N/A |

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Remarks:

Figure 2 - DATA SHEET FOR TRANSMISSION LOSS MEASUREMENT



DATA SHEET

REV. ☐

DATE: _____

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APS RF TC Date 24 AUG 81

Frequency LOW BAND Radome El Angle 0 Radome Az Angle 0

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| -3.5° | 28.6 | 25.5 | N/A +3.1 |
| -9.5° | 34.8 | 34.8 | N/A 0 |
| +3.5° | 27.7 | 25.8 | N/A +1.9 |
| +7.5° | 33.9 | 31.7 | N/A +2.1 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
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Remarks:

FIGURE 3 - DATA SHEET FOR SIDELobe MEASUREMENTS

REV. ☐

DATE: _____

DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer AP5 RF TC Date 24 AUG 81

Frequency LOW BAND Radome El Angle 0° Radome Az Angle 90°

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| - 3.5° | 29.6 | 26.5 | N/A + 2.1 |
| - 9.5° | 34.8 | 30.8 | N/A + 4.0 |
| + 3.5° | 27.7 | 21.0 | N/A + 6.7 |
| + 7.5° | 33.8 | 27.6 | N/A + 6.2 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
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Remarks:

FIGURE 3. DATA SHEET FOR SIDELobe MEASUREMENTS

REV. ☐

DATE: _____

DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APS RF TC Date 24 AUG 81

Frequency LOW BAND Radome El Angle 0° Radome Az Angle 180°

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|--------------------------|
| | No Radome | With Radome | |
| -3.5 | 28.6 | — | N/A - |
| -9.5 | 34.8 | 32.8 | N/A + 2.0 |
| +3.5 | 27.7 | 25.2 | N/A + 2.5 |
| +7.5 | 33.8 | 27.8 | N/A + 6.0 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
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| | | | N/A |
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Remarks:

FIGURE 3 - DATA SHEET FOR SIDELobe MEASUREMENTS

REV. ☐

DATE: _____

DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APS RF TC Date 24 AUG 81

Frequency LOW BAND Radome El Angle 0° Radome Az Angle 270°

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| -3.5° | 28.6 | 26.2 | N/A + 2.4 |
| -9.5° | 34.8 | 30.0 | N/A + 4.8 |
| +3.5° | 27.7 | 20.6 | N/A + 7.1 |
| +7.5° | 33.8 | 27.0 | N/A + 6.8 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
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| | | | N/A |
| | | | N/A |

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Remarks:

FIGURE 3 - DATA SHEET FOR SIDELOBE MEASUREMENTS

REV. 1

DATE: _____

DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APS RF TC Date 24 AUG 81

Frequency LOW BAND Radome El Angle -20 Radome Az Angle 0°TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| -3.5° | 28.6 | 28.2 | N/A + 0.4 |
| -9.5° | 34.8 | 31.0 | N/A + 3.8 |
| +3.5° | 27.7 | 25.2 | N/A + 2.5 |
| +7.5° | 33.8 | 33.6 | N/A + 0.2 |
| | | | N/A |
| | | | N/A |
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FIGURE 3 - DATA SHEET FOR SIDELOBE MEASUREMENTS

REV. ☐

DATE: _____

ESSCODATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APS TC RF Date 24 AUG 81

Frequency LOW BAND Radome El Angle -20° Radome Az Angle 90°

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| -3.5° | 28.6 | 23.2 | N/A + 5.4 |
| -9.5° | 34.8 | 28.8 | N/A + 6.0 |
| +3.5° | 27.7 | 26.2 | N/A + 1.5 |
| +7.5° | 33.5 | 33.6 | N/A + 0.2 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
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| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |

DATA APPROVAL

ESSCO

CUSTOMER

Remarks:

FIGURE 3 - DATA SHEET FOR SIDELobe MEASUREMENTS

REV. ☐

DATE: _____

DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APS RF TC Date 24 AUG 81

Frequency LOW BAND Radome El Angle -20° Radome Az Angle 180°

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| -3.5° | 29.6 | 29.0 | N/A - 0.4 |
| -9.5° | 34.8 | 33.3 | N/A + 1.5 |
| +3.5° | 27.7 | 25.4 | N/A + 2.3 |
| +7.5° | 33.5 | 32.6 | N/A + 1.2 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |

DATA APPROVAL

ESSCO

CUSTOMER

Remarks:

FIGURE 3 - DATA SHEET FOR SIDELobe MEASUREMENTS



REV. L1
DATE: _____

DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APS RF TC Date 24 AUG 51

Frequency LOW BAND Radome El Angle 20° Radome Az Angle 270°

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| -3.5° | 28.6 | 25.5 | N/A + 3.1 |
| -9.5° | 34.8 | 29.7 | N/A + 5.1 |
| +3.5° | 27.7 | 20.7 | N/A + 7.0 |
| +7.5° | 33.5 | 27.0 | N/A + 6.5 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |

DATA APPROVAL

ESSCO

CUSTOMER

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Remarks:

FIGURE 3 - DATA SHEET FOR SIDELOBE MEASUREMENTS

REV. L

DATE: _____

DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APS RF TC Date 24 AUG 81

Frequency LOW BAND Radome El Angle +20° Radome Az Angle 0°TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| -3.5° | 28.6 | 29.8 | N/A - 1.2 |
| -9.5° | 34.8 | 31.8 | N/A + 3.0 |
| +3.5° | 27.7 | 31.2 | N/A - 3.5° |
| +7.5° | 33.5 | 32.3 | N/A + 1.5° |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
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| | | | N/A |

DATA APPROVAL

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23

Remarks:

FIGURE 3 - DATA SHEET FOR SIDELobe MEASUREMENTS

REV. DATE: DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer AP5 RF TC Date 24 AUG 81

Frequency LOW BAND Radome El Angle +20° Radome Az Angle 90°

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| -3.5° | 28.6 | 26.0 | N/A +2.6 |
| -4.5° | 34.8 | 31.7 | N/A +3.1 |
| +3.5° | 27.7 | 22.5° | N/A +5.2 |
| +7.5° | 33.8 | 29.5 | N/A +4.0 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
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| | | | N/A |
| | | | N/A |

DATA APPROVAL

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Remarks:

FIGURE 3 - DATA SHEET FOR SIDELOBE MEASUREMENTS

REV. 1 DATE: DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APC IPF TC Date 24 AUG 81

Frequency LOW BAND Radome El Angle +20° Radome Az Angle 180°

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| -3.5 | 28.6 | 29.8 | N/A - 1.2 |
| -9.5 | 34.8 | 30.4 | N/A + 4.4 |
| +3.5 | 27.7 | 26.4 | N/A + 1.3 |
| +7.5 | 33.8 | 34.0 | N/A - 0.2 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |

DATA APPROVAL

ESSCO

CUSTOMER

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23

Remarks:

FIGURE 3 - DATA SHEET FOR SIDELOBE MEASUREMENTS

REV. ☐

DATE: _____

DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APS RF TC Date 24 AUG 81

Frequency LOW BAND Radome El Angle +20° Radome Az Angle 270°

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| -3.5° | 28.6 | 25.7 | N/A + 2.9 |
| -9.5° | 34.8 | 32.5 | N/A + 2.3 |
| +3.5° | 27.7 | 26.0 | N/A + 1.7 |
| +7.5° | 33.9 | 33.3 | N/A + 0.5 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |

DATA APPROVAL

ESSCO

CUSTOMER

Remarks: _____

FIGURE 3 - DATA SHEET FOR SIDELobe MEASUREMENTS

REV. ☐

DATE: _____

DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APS RF TC Date 25 AUG 81

Frequency MID BAND Radome El Angle 0° Radome Az Angle 0°

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|--------------------------|
| | No Radome | With Radome | |
| - 3.5° | 25.7 | 25.9 | N/A - 1.2 |
| - 8.5° | 35.3 | 26.4 | N/A + 3.9 |
| + 3.5° | 25.6 | 23.2 | N/A + 2.4 |
| + 5.5° | 28.2 | 26.6 | N/A + 1.6 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |

DATA APPROVAL

ESSCO

CUSTOMER

10/22

Remarks:

FIGURE 3 - DATA SHEET FOR SIDELOBE MEASUREMENTS

REV. ☐

DATE: _____

DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APS RF TC Date 25 AUG 81

Frequency MID BAND Radome El Angle 0 Radome Az Angle 90°

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| -3.5° | 25.7 | 23.2 | N/A + 2.5° |
| -8.5° | 35.3 | 26.2 | N/A + 9.1 |
| +3.5° | 25.6 | 19.8 | N/A + 5.8 |
| +5.5° | 29.2 | 23.6 | N/A + 4.6 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |

DATA APPROVAL

ESSCO

CUSTOMER

Remarks: _____

FIGURE 3 - DATA SHEET FOR SIDELobe MEASUREMENTS

REV. ☐

DATE: _____

DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APS RF TC Date 20 AUG 81

Frequency MID BAND Radome El Angle 0° Radome Az Angle 180°

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| - 3.5° | 25.7 | 27.8 | N/A - 2.1 |
| - 8.5° | 35.3 | 29.5 | N/A + 6.8 |
| + 3.5° | 25.6 | 23.3 | N/A + 2.3 |
| + 8.5° | 29.2 | 32.5 | N/A - 4.3 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |

DATA APPROVAL

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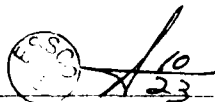
Remarks:

FIGURE 3 - DATA SHEET FOR SIDELOBE MEASUREMENTS

REV. ☐

DATE: _____

DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APJ H.T. TS Date 20 AUG 51

Frequency MID BAND Radome El Angle Radome Az Angle 270°

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| -3.5° | 25.7 | 22.5 | N/A + 2.9 |
| -5.5° | 25.3 | 27.5 | N/A + 1.5 |
| +3.5° | 25.6 | 20.6 | N/A + 4.6 |
| +5.5° | 25.2 | 23.6 | N/A + 4.6 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |

DATA APPROVAL

ESSCO

CUSTOMER

Remarks: _____

FIGURE 3 DATA SHEET FOR SIDELOBE MEASUREMENTS

REV. DATE: DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APS RF TC Date 25 AUG 81

Frequency MID BAND Radome EI Angle 20 Radome Az Angle 0

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| 3.5 | 25.7 | 24.4 | N/A + 1.3 |
| - 3.5 | 35.3 | 29.0 | N/A + 1.3 |
| + 3.5 | 25.6 | 22.0 | N/A + 2.4 |
| + 5.5 | 25.2 | 31.0 | N/A + 2.5 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |

DATA APPROVAL

ESSCO

CUSTOMER

Remarks:

FIGURE 3 - DATA SHEET FOR SIDELOBE MEASUREMENTS

REV. 6

DATE: _____

DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APD RF TC Date 25 AUG 81

Frequency MID BAND Radome El Angle -20° Radome Az Angle 90°

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| 3.5° | 25.7 | 21.3 | N/A + 4.4 |
| -8.5° | 30.3 | 27.2 | N/A + 3.1 |
| +3.5° | 24.6 | 25.0 | N/A + 0.6 |
| +57.5° | 28.2 | 26.7 | N/A + 1.5 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |

DATA APPROVAL

ESSCO

CUSTOMER

Remarks:

FIGURE 4 DATA SHEET FOR SIDELobe MEASUREMENTS



REV. ☐
DATE: _____

DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APS RF TC Date 20 AUG 81

Frequency MID BAND Radome El Angle -20° Radome Az Angle 180°

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| -3.5° | 25.7 | 23.6 | N/A + 2.1 |
| -8.5° | 35.3 | 30.0 | N/A + 5.3 |
| +3.5° | 25.6 | 23.2 | N/A + 2.4 |
| +8.5° | 28.2 | 32.4 | N/A - 4.2 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |

DATA APPROVAL
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Remarks:

FIGURE 3 - DATA SHEET FOR SIDELOBE MEASUREMENTS

REV. ☐

DATE: _____

DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer AFS RF TC Date 25 AUG 81

Frequency MID BAND Radome El Angle -20° Radome Az Angle 270°

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| -3.5° | 25.7 | 24.3 | N/A + .4 |
| -8.5° | 35.3 | 25.2 | N/A + .1 |
| +3.5° | 25.6 | 20.4 | N/A + .2 |
| +57.5° | 28.2 | 25.2 | N/A + .3 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |

DATA APPROVAL

ESSCO

CUSTOMER

Remarks: _____

FIGURE 3 - DATA SHEET FOR SIDELOBE MEASUREMENTS

REV. ☐

DATE: _____

DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APD RF TC Date 25 AUG 81

Frequency MID BAND Radome El Angle +20° Radome Az Angle 0°

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| -3.5° | 25.7 | 20.0 | N/A + 1.2 |
| -5.5° | 35.3 | 33.8 | N/A + 1.5 |
| +3.5° | 25.6 | 23.5 | N/A + 2.1 |
| +5.5° | 28.2 | 26.9 | N/A + 1.4 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |

DATA APPROVAL

ESSCO

CUSTOMER

Remarks: _____

FIGURE 3 - DATA SHEET FOR SIDELobe MEASUREMENTS

REV. ☐

DATE: _____

DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APS RF TC Date 25 AUG 81

Frequency MID BAND Radome El Angle +20° Radome Az Angle 90°

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|--------------------------|
| | No Radome | With Radome | |
| -3.5° | 25.7 | 24.0 | N/A + 1.7 |
| -8.5° | 35.3 | 26.6 | N/A + 8.7 |
| +3.5° | 25.6 | 21.6 | N/A + 4.0 |
| +5.5° | 28.2 | 24.8 | N/A + 3.4 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |

DATA APPROVAL

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23Remarks:

FIGURE 3 - DATA SHEET FOR SIDELOBE MEASUREMENTS



Frequency *MID BAND* Radome El Angle *720°* Radome Az Angle *180°*

TEST RESULTS

[illegible]

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Remarks :

FIGURE 3 - DATA SHEET FOR SIDELobe MEASUREMENTS

DATA SHEET

Procedure No. 3.0
 Title: Sidelobe Perturbations
 Part No. M10-76-8000 Radome with XP Plates
 Serial No. 1886-001 Job No. 1886
 Test Engineer APS RF TC Date 25 AUG 81

Frequency MID BAND Radome El Angle +20° Radome Az Angle 270°

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| - 3.5 | 25.7 | 22.0 | N/A + 3.7 |
| - 8.5 | 35.3 | 34.4 | N/A + 0.9 |
| + 3.5 | 25.6 | 23.0 | N/A + 2.6 |
| + 5.5 | 28.2 | 26.4 | N/A + 1.8 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |

DATA APPROVAL 
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 CUSTOMER _____

Remarks: _____

FIGURE 3 - DATA SHEET FOR SIDELOBE MEASUREMENTS

REV. ☐

DATE: _____

DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer NPS RF TC Date 29 AUG 81

Frequency HIGH BAND Radome El Angle 0° Radome Az Angle 0°

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| -5.0 | 27.4 | 23.2 | N/A + 4.2 |
| -10.0 | 34.7 | 29.3 | N/A + 5.4 |
| +3.5 | 25.1 | 23.4 | N/A + 1.7 |
| +5.0 | 28.4 | 32.4 | N/A - 4.0 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |

DATA APPROVAL

ESSCO

CUSTOMER



Remarks: _____

FIGURE 3 - DATA SHEET FOR SIDELOBE MEASUREMENTS

REV. ☐

DATE: _____

DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APS RF TC Date 24 AUG 81

Frequency HIGH BAND Radome El Angle 0° Radome Az Angle 90°

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| -5.0 | 27.4 | 21.0 | N/A + 4.4 |
| -10.0 | 34.7 | 31.8 | N/A + 2.9 |
| +3.5 | 25.1 | 19.7 | N/A + 5.4 |
| +5.0 | 28.4 | 22.3 | N/A + 6.1 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |

DATA APPROVAL

ESSCO

CUSTOMER

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Remarks: _____

FIGURE 3 - DATA SHEET FOR SIDELOBE MEASUREMENTS

REV. ☐

DATE: _____

DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APS RF TC Date 24 AUG 81

Frequency HIGH BAND Radome El Angle 0° Radome Az Angle 180°

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| -5.0 | 27.4 | 24.0 | N/A + 3.4 |
| -10.0 | 34.7 | 31.0 | N/A + 3.7 |
| +3.5 | 25.1 | 21.0 | N/A + 4.1 |
| +5.0 | 28.4 | 29.2 | N/A - 0.8 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |

DATA APPROVAL

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CUSTOMER

Remarks:

FIGURE 3 - DATA SHEET FOR SIDELOBE MEASUREMENTS

REV. ☐

DATE: _____

DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APS RF TC Date 24 AUG 81

Frequency HIGH BAND Radome El Angle 0° Radome Az Angle 270°

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| -5.0 | 27.4 | 22.8 | N/A + 4.6 |
| -10.0 | 34.7 | 26.4 | N/A + 8.3 |
| +3.5 | 25.1 | 19.0 | N/A + 4.1 |
| +5.0 | 28.4 | 25.2 | N/A + 3.2 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |

DATA APPROVAL

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CUSTOMER

Remarks:

FIGURE 3 - DATA SHEET FOR SIDELOBE MEASUREMENTS

DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APJ RF TC Date 24 AUG 81

Frequency HIGH BAND Radome El Angle -20 Radome Az Angle 0

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| -5.0 | 27.4 | 23.2 | N/A + 4.2 |
| -10.0 | 34.7 | 29.6 | N/A + 5.1 |
| +3.5 | 25.1 | 20.6 | N/A + 4.5 |
| +5.0 | 28.4 | 29.6 | N/A - 1.2 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |

DATA APPROVAL

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[Signature]
23

Remarks:

FIGURE 3 - DATA SHEET FOR SIDELobe MEASUREMENTS

REV. ☐

DATE: _____

DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APS RF TC Date 24 AUG 81

Frequency HIGH BAND Radome El Angle -20° Radome Az Angle 90°

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|--------------------------|
| | No Radome | With Radome | |
| -5.0 | 27.4 | 21.0 | N/A + 6.4 |
| -10.0 | 34.7 | 28.8 | N/A + 5.9 |
| +3.5 | 25.1 | 22.2 | N/A + 2.9 |
| +5.0 | 28.4 | 24.6 | N/A + 3.8 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |

DATA APPROVAL

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Remarks:

FIGURE 3 - DATA SHEET FOR SIDELOBE MEASUREMENTS

REV. ☐

DATE: _____

DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APS RF TC Date 24 AUG 81

Frequency HIGH BAND Radome El Angle -20° Radome Az Angle 180°

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| -5.0 | 27.4 | 24.0 | N/A + 3.4 |
| -10.0 | 34.7 | 31.0 | N/A + 3.7 |
| +3.5 | 25.1 | 20.6 | N/A + 4.5 |
| +5.0 | 28.4 | 30.4 | N/A - 2.0 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |

DATA APPROVAL

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ASRemarks:

FIGURE 3 - DATA SHEET FOR SIDELOBE MEASUREMENTS

REV. ☐

DATE: _____

DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APS RF TC Date 24 AUG 81

Frequency HIGH BAND Radome El Angle -20° Radome Az Angle 270°

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|--------------------------|
| | No Radome | With Radome | |
| -5.0 | 27.4 | 21.6 | N/A + 5.8 |
| -10.0 | 34.7 | 29.6 | N/A + 5.1 |
| +3.5 | 25.1 | 19.4 | N/A + 5.7 |
| +5.0 | 28.4 | 22.6 | N/A + 5.8 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |

DATA APPROVAL

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Remarks: _____

FIGURE 3 - DATA SHEET FOR SIDELOBE MEASUREMENTS

REV. ☐

DATE: _____

DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886 -001 Job No. 1886
Test Engineer APD RF TC Date 24 AUG 81

Frequency HIGH BAND Radome El Angle +20° Radome Az Angle 0°

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| -5.0 | 27.4 | 25.0 | N/A + 2.4 |
| -10.0 | 34.7 | 30.4 | N/A + 4.3 |
| +3.5 | 25.1 | 22.0 | N/A + 3.1 |
| +5.0 | 25.4 | 26.6 | N/A + 1.8 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |

DATA APPROVAL

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Remarks:

FIGURE 3 - DATA SHEET FOR SIDELOBE MEASUREMENTS

DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APS RF TC Date 24 AUG 81

Frequency HIGH BAND Radome El Angle +20° Radome Az Angle 90°

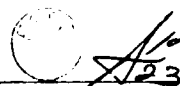
TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| -5.0 | 27.4 | 21.6 | N/A + 5.8 |
| -10.0 | 34.7 | 30.4 | N/A + 4.3 |
| +3.5 | 25.1 | 21.4 | N/A + 3.7 |
| +5.0 | 28.4 | 23.8 | N/A + 4.6 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |

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Remarks:

FIGURE 3 - DATA SHEET FOR SIDELOBE MEASUREMENTS

DATA SHEET

Procedure No. 3.0
 Title: Sidelobe Perturbations
 Part No. M10-76-8000 Radome with XP Plates
 Serial No. 1886-001 Job No. 1886
 Test Engineer APS RF TC Date 24 AUG 81

Frequency HIGH BAND Radome El Angle +30° Radome Az Angle 180°

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| -5.0 | 27.4 | 28.2 | N/A - 0.8 |
| -10.0 | 34.7 | 29.6 | N/A + 4.1 |
| +3.5 | 25.1 | 23.0 | N/A + 2.1 |
| +5.0 | 28.4 | 31.8 | N/A - 3.4 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |

DATA APPROVAL

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Remarks: _____

FIGURE 3 - DATA SHEET FOR SIDELobe MEASUREMENTS

REV. ☐

DATE: _____

DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APS RF TC Date 24 AUG 81

Frequency HIGH BAND Radome El Angle +20° Radome Az Angle 270°

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| -5.0 | 27.4 | 26.6 | N/A + 0.8 |
| -10.0 | 34.7 | 32.6 | N/A + 2.1 |
| +3.5 | 25.1 | 23.2 | N/A + 1.9 |
| +5.0 | 28.4 | 26.0 | N/A + 2.4 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |

DATA APPROVAL

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Remarks: _____

FIGURE 3 - DATA SHEET FOR SIDELobe MEASUREMENTS

REV. ☐

DATE: _____

DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APD RF TC Date 19 AUG 81

Frequency MID BAND Radome El Angle 0° Radome Az Angle 0°TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| - 3.5° | 25.7 | 22.6 | N/A + 3.1 |
| - 8.5° | 35.3 | 26.9 | N/A + 8.5 |
| + 3.5° | 25.6 | 23.6 | N/A + 2.0 |
| + 5.5° | 28.2 | 29.9 | N/A - 0.6 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |

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Remarks:

ALL SIDELOBES MEASURED AND FOUND TO BE WITHIN SPECIFICATION

FIGURE 3 - DATA SHEET FOR SIDELobe MEASUREMENTS

REV. ☐

DATE: _____

DATA SHEET

Procedure No. 3.0
Title: Sidelobe Perturbations
Part No. M10-76-8000 Radome with XP Plates
Serial No. 1886-001 Job No. 1886
Test Engineer APS RF JC Date 19 AUG 81

Frequency MID BAND Radome El Angle 0° Radome Az Angle 0°

TEST RESULTS

| Antenna Az Angle from Beam Peak | Antenna Sidelobe | | Specification Limit Δ |
|------------------------------------|------------------|-------------|---------------------------------|
| | No Radome | With Radome | |
| -3.5 | 25.7 | 22.6 | N/A + 3.1 |
| -8.8 | 35.3 | 30.6 | N/A + 4.7 |
| +3.5 | 25.6 | 22.8 | N/A + 2.8 |
| +5.5 | 28.2 | 27.8 | N/A + 0.4 |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |
| | | | N/A |

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Remarks:

M10-76-8000 Radome with XP Plates

FIGURE 3 - DATA SHEET FOR SIDELobe MEASUREMENTS



DATA SHEET

Procedure No.

Title

Part No.

Serial No.

Job No.

Test Engineer

Date:

TEST RESULTS

Frequency - Low Band

| Elevation Angle | Azimuth Angle | | | | No Radome Beam Width | Specification Limit |
|-----------------|---------------|--------|--------|--------|----------------------|---------------------|
| | 0° | 90° | 180° | 270° | | |
| -20° | +1.23° | +1.03° | +1.22° | +1.04° | 1.40° | N/A |
| 0° | +1.15° | +1.08° | +1.19° | +1.08° | 1.40° | N/A |
| +20° | +1.13° | +1.15° | +1.19° | +1.10° | 1.40° | N/A |

Frequency - Mid Band

| Elevation Angle | Azimuth Angle | | | | No Radome Beam Width | Specification Limit |
|-----------------|---------------|--------|--------|--------|----------------------|---------------------|
| | 0° | 90° | 180° | 270° | | |
| -20° | +1.10° | 0 | +1.05° | 0 | 1.30° | N/A |
| 0° | +1.06° | 0 | +1.09° | +1.03° | 1.30° | N/A |
| +20° | +1.03° | +1.02° | +1.02° | +1.04° | 1.30° | N/A |

Frequency - High Band

| Elevation Angle | Azimuth Angle | | | | No Radome Beam Width | Specification Limit |
|-----------------|---------------|--------|--------|--------|----------------------|---------------------|
| | 0° | 90° | 180° | 270° | | |
| -20° | +1.15° | 0 | +1.17° | +1.01° | 1.42° | N/A |
| 0° | +1.13° | 0 | +1.23° | +1.05° | 1.42° | N/A |
| +20° | +1.07° | +1.08° | +1.14° | +1.03° | 1.42° | N/A |

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Remarks:

FIGURE 4 - DATA SHEET FOR BEAM WIDTH MEASUREMENTS

DATA SHEET

Procedure No. 5.0
 Title: Antenna Beam Symmetry (Beam Skew at -16 dB)
 Part No. M10-76-8000 Radome with XP Plates
 Serial No. 1886-001 Job No. 1886
 Test Engineer: APS RF TC Date: 25 AUG 81

TEST RESULTS

Frequency - Low Band

| Elevation Angle | Azimuth Angle | | | | No Radome Symmetry | Specification Limit |
|-----------------|---------------|--------|--------|--------|--------------------|---------------------|
| | 0° | 90° | 180° | 270° | | |
| -20° | +1.10° | +1.06° | +1.06° | +1.03° | +1.08° | N/A |
| 0° | +1.04° | +1.03° | +1.10° | +1.06° | +1.08° | N/A |
| +20° | +1.15° | +1.13° | +1.08° | +1.06° | +1.08° | N/A |

Frequency - Mid Band

| Elevation Angle | Azimuth Angle | | | | No Radome Symmetry | Specification Limit |
|-----------------|---------------|--------|--------|--------|--------------------|---------------------|
| | 0° | 90° | 180° | 270° | | |
| -20° | +1.15° | +1.03° | +1.10° | +1.03° | +1.04° | N/A |
| 0° | +1.09° | +1.05° | +1.19° | +1.05° | +1.04° | N/A |
| +20° | +1.19° | +1.02° | +1.04° | +1.02° | +1.04° | N/A |

Frequency - High Band

| Elevation Angle | Azimuth Angle | | | | No Radome Symmetry | Specification Limit |
|-----------------|---------------|--------|--------|--------|--------------------|---------------------|
| | 0° | 90° | 180° | 270° | | |
| -20° | +1.10° | +1.08° | +1.10° | +1.05° | -1.02° | N/A |
| 0° | +1.07° | +1.06° | +1.12° | +1.02° | -1.02° | N/A |
| +20° | +1.19° | +1.07° | +1.03° | +1.08° | -1.02° | N/A |

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Remarks:

Figure 5 - DATA SHEET FOR BEAM SYMMETRY MEASUREMENTS

REV. _____
DATE: _____

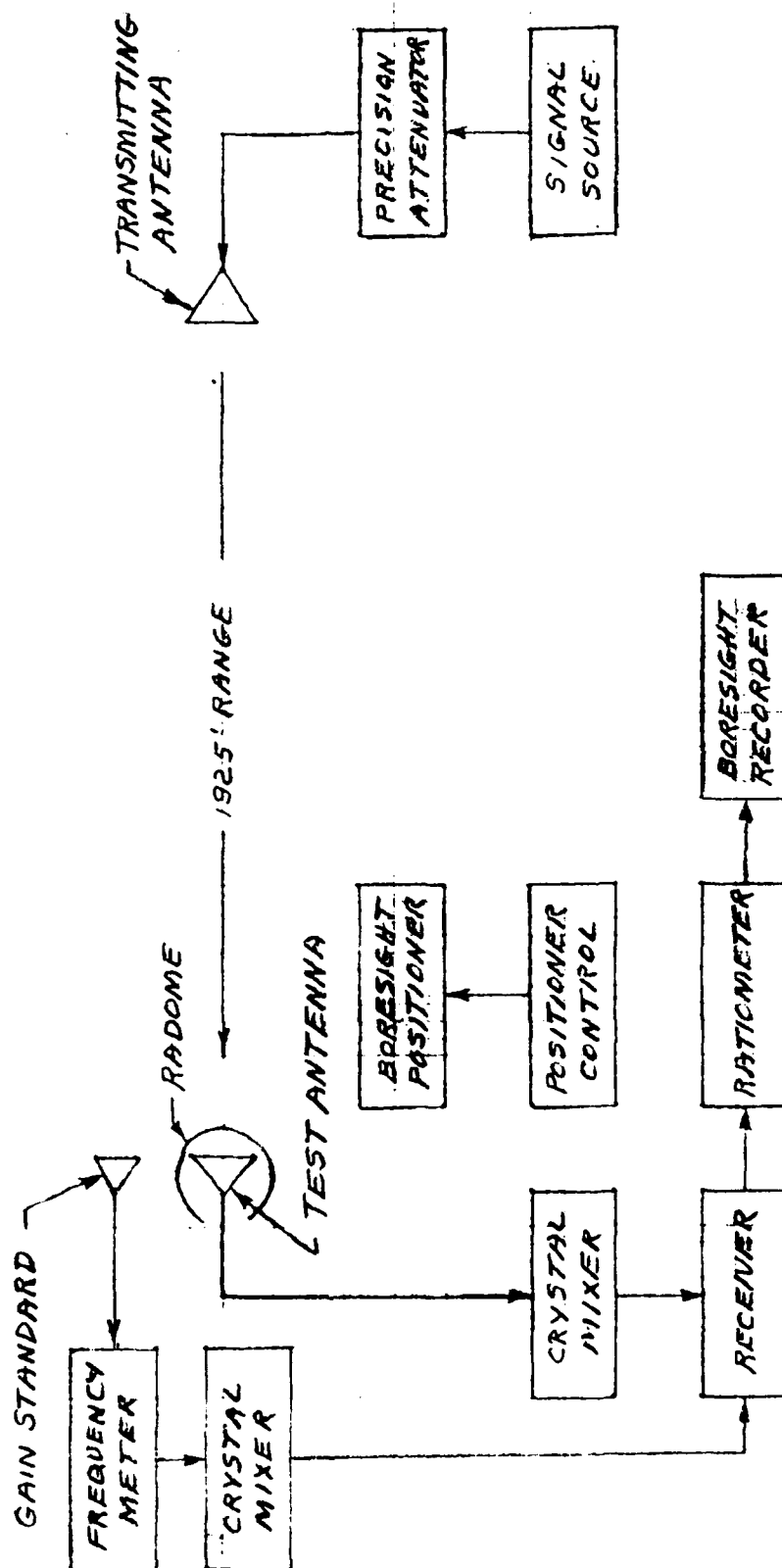


FIGURE 6 - EQUIPMENT USED FOR BORESIGHT MEASUREMENTS

DATA SHEET

Procedure No. Q.0
 Title: Boresight Error
 Part No. M10-76-8000 Radome with XP Plates
 Serial No. 1886-001 Job No. 1886
 Test Engineer AP5 RF TC Date 25 AUG 81

TEST RESULTS

Frequency - Low Band

| Elevation Angle | Maximum Boresight in Milliradians | Specification Limit |
|-----------------|-----------------------------------|---------------------|
| -20° | ± 0.75 | N/A |
| 0° | ± 0.64 | N/A |
| +20° | ± 0.58 | N/A |

Frequency - Mid Band

| Elevation Angle | Maximum Boresight in Milliradians | Specification Limit |
|-----------------|-----------------------------------|---------------------|
| -20° | ± 0.75 | N/A |
| 0° | ± 0.54 | N/A |
| +20° | ± 0.70 | N/A |

Frequency - High Band

| Elevation Angle | Maximum Boresight in Milliradians | Specification Limit |
|-----------------|-----------------------------------|---------------------|
| -20° | ± 0.81 | N/A |
| 0° | ± 0.70 | N/A |
| +20° | ± 0.78 | N/A |

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23

Remarks:

Figure 7 - DATA SHEET FOR BORESIGHT MEASUREMENTS



APPENDIX B

CHART RECORDINGS

APPENDIX C

RECORDED DATA

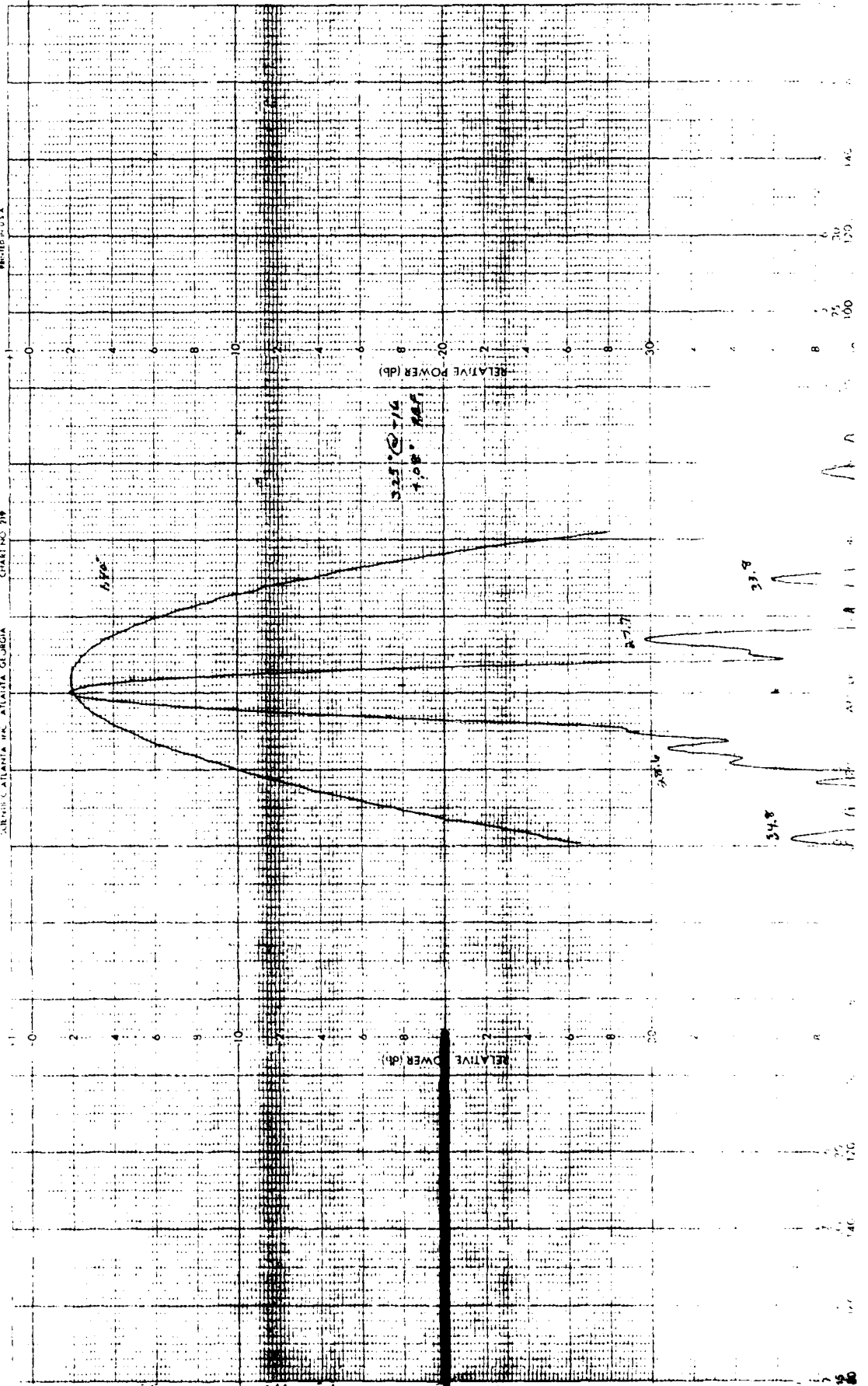
| Pattern No. | Description | Page No. |
|-------------|--|----------|
| 1 | Low Band - No Radome Reference Pattern | 1 |
| 2 | Low Band - Radome On, 0° Az, 0° El | 2 |
| 3 | Low Band - Radome On, 90° Az, 0° El | 3 |
| 4 | Low Band - Radome On, 180° Az, 0° El | 4 |
| 5 | Low Band - Radome On, 270° Az, 0° El | 5 |
| 6 | Low Band - Radome On, 0° Az, -20° El | 6 |
| 7 | Low Band - Radome On, 90° Az, -20° El | 7 |
| 8 | Low Band - Radome On, 180° Az, -20° El | 8 |
| 9 | Low Band - Radome On, 270° Az, -20° El | 9 |
| 10 | Low Band - Radome On, 0° Az, +20° El | 10 |
| 11 | Low Band - Radome On, 90° Az, +20° El | 11 |
| 12 | Low Band - Radome On, 180° Az, +20° El | 12 |
| 13 | Low Band - Radome On, 270° Az, +20° El | 13 |
| 14 | Low Band - Radome On, 0° Az, 0° El, 360° Pattern | 14 |
| 15 | Low Band - No Radome, 0° Az, 0° El, 360° Pattern | 15 |
| 16 | Low Band - Transmission Loss and Calibration | 16 |
| 17 | Low Band - Loss Variability, 360° Az scan at 0° El | 17 |
| 18 | Low Band - Loss Variability, 360° Az scan at -20° El | 18 |
| 19 | Low Band - Loss Variability, 360° Az scan at +20° El | 19 |
| 20 | Low Band - Boresight Error, 360° az scan at 0° El | 20 |
| 21 | Low Band - Boresight Error, 360° Az scan at -20° El | 21 |
| 22 | Low Band - Boresight Error, 360° Az scan at +20° El | 22 |
| 23 | Mid Band - No Radome Reference Pattern | 23 |
| 24 | Mid Band - Radome On, 0° Az, 0° El | 24 |
| 25 | Mid Band - Radome On, 90° Az, 0° El | 25 |
| 26 | Mid Band - Radome On, 180° Az, 0° El | 26 |
| 27 | Mid Band - Radome On, 270° Az, 0° El | 27 |
| 28 | Mid Band - Radome On, 0° Az, -20° El | 28 |
| 29 | Mid Band - Radome On, 90° Az, -20° El | 29 |
| 30 | Mid Band - Radome On, 180° Az, -20° El | 30 |
| 31 | Mid Band - Radome On, 270° Az, -20° El | 31 |
| 32 | Mid Band - Radome On, 0° Az, +20° El | 32 |
| 33 | Mid Band - Radome On, 90° Az, +20° El | 33 |
| 34 | Mid Band - Radome On, 180° Az, +20° El | 34 |
| 35 | Mid Band - Radome On, 270° Az, +20° El | 35 |
| 36 | Mid Band - Radome On, 0° Az, 0° El, 360° Pattern | 36 |
| 37 | Mid Band - No Radome, 0° Az, 0° El, 360° Pattern | 37 |
| 38 | Mid Band - Transmission Loss and Calibration | 38 |
| 39 | Mid Band - Loss Variability, 360° Az scan at 0° El Angle | 39 |
| 40 | Mid Band - Loss Variability, 360° Az scan at -20° El Angle | 40 |
| 41 | Mid Band - Loss Variability, 360° Az scan at +20° El Angle | 41 |
| 42 | Mid Band - Boresight Error, 360° Az scan at 0° El | 42 |
| 43 | Mid Band - Boresight Error, 360° Az scan at -20° El | 43 |
| 44 | Mid Band - Boresight Error, 360° Az scan at +20° El | 44 |

| Pattern No. | Description | Page No. |
|----------------|--|-------------|
| 45 | High Band - No Radome Reference Pattern | 45 |
| 46 | High Band - Radome On, 0° Az, 0° El | 46 |
| 47 | High Band - Radome On, 90° Az, 0° El | 47 |
| 48 | High Band - Radome On, 180° Az, 0° El | 48 |
| 49 | High Band - Radome On, 270° Az, 0° El | 49 |
| 50 | High Band - Radome On, 0° Az, -20° El | 50 |
| 51 | High Band - Radome On, 90° Az, -20° El | 51 |
| 52 | High Band - Radome On, 180° Az, -20° El | 52 |
| 53 | High Band - Radome On, 270° Az, -20° El | 53 |
| 54 | High Band - Radome On, 0° Az, +20° El | 54 |
| 55 | High Band - Radome On, 90° Az, +20° El | 55 |
| 56 | High Band - Radome On, 180° Az, +20° El | 56 |
| 57 | High Band - Radome On, 270° Az, +20° El | 57 |
| 58 | High Band - Radome On, 0° Az, 0° El, 360° Pattern | 58 |
| 59 | High Band - No Radome, 0° az, 0° El, 360° Pattern | 59 |
| 60 | High Band - Transmission Loss and Calibration | 60 |
| 61 | High Band - Loss Variability, 360° Az scan at 0° El | 61 |
| 62 | High Band - Loss Variability, 360° Az scan at -20° El | 62 |
| 63 | High Band - Loss Variability, 360° Az scan at +20° El | 63 |
| 64 | High Band - Boresight Error, 360° Az scan at 0° El | 64 |
| 65 | High Band - Boresight Error, 360° Az scan at -20° El | 65 |
| 66 | High Band - Boresight Error, 360° Az scan at +20° El | 66 |
| 67 | Mid Band - XP Plate Area, 0° Az, 0° El | 67 |
| 68 | Mid Band - Space Frame Area, 0° Az, 0° El | 68 |
| 69 | Low Band - Transmission Loss in XP Plate Area, 360° Az scan | 69 |
| 70 | Mid Band - Transmission Loss in XP Plate Area, 360° Az scan | 70 |
| 71 | High Band - Transmission Loss in XP Plate Area, 360° Az scan | 71 |

PRODUCED BY USA

CHARI NO 219

UNIVERSITY OF ATLANTA INC ATLANTA GEORGIA



293663

DATE 24 AUG 81

ENGR MRS RF TC

2 - REMARKS - LOW BAND RANDOM ON

0.42 0.42

RELATIVE POWER (dB)

RELATIVE POWER (dB)

RELATIVE POWER (dB)

RELATIVE POWER (dB)

RELATIVE POWER (dB)

RELATIVE POWER (dB)

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22

24

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32

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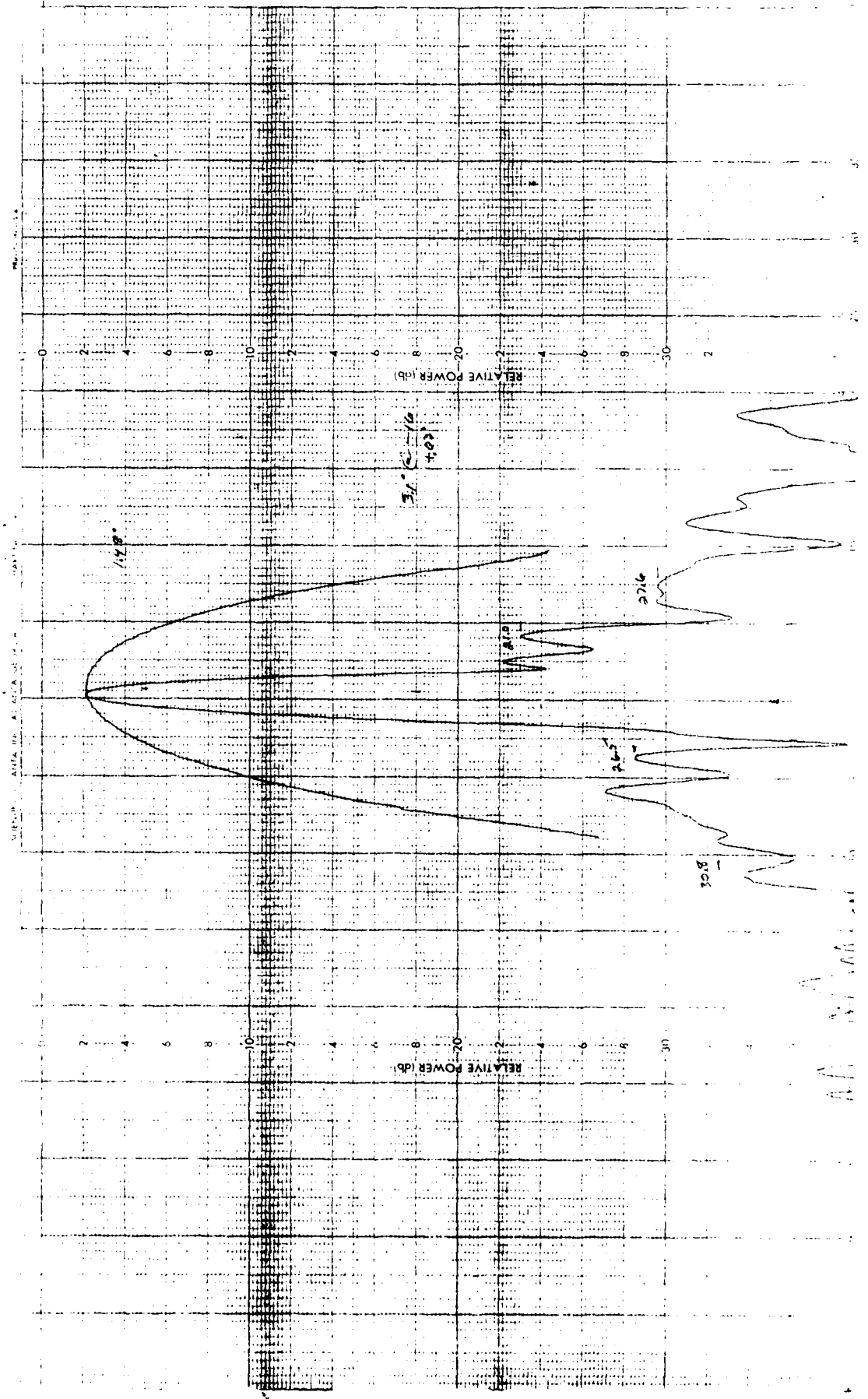
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12

14



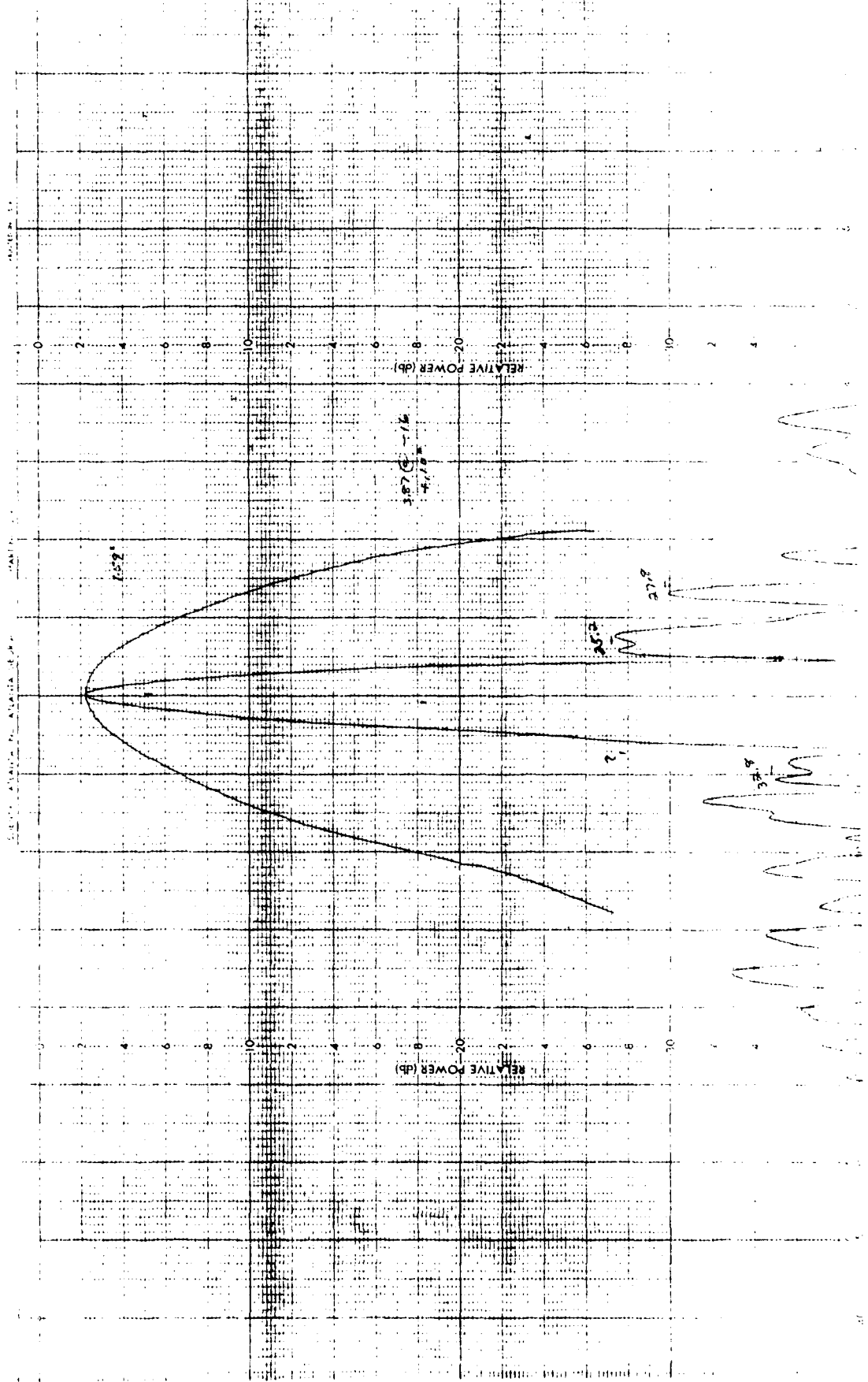
213665

DATE 24 AUG 81

LNCR APPS HF TC

RHDCINE CN

99-01
180-42 C'EL



293666

DATE 24 MAR 81

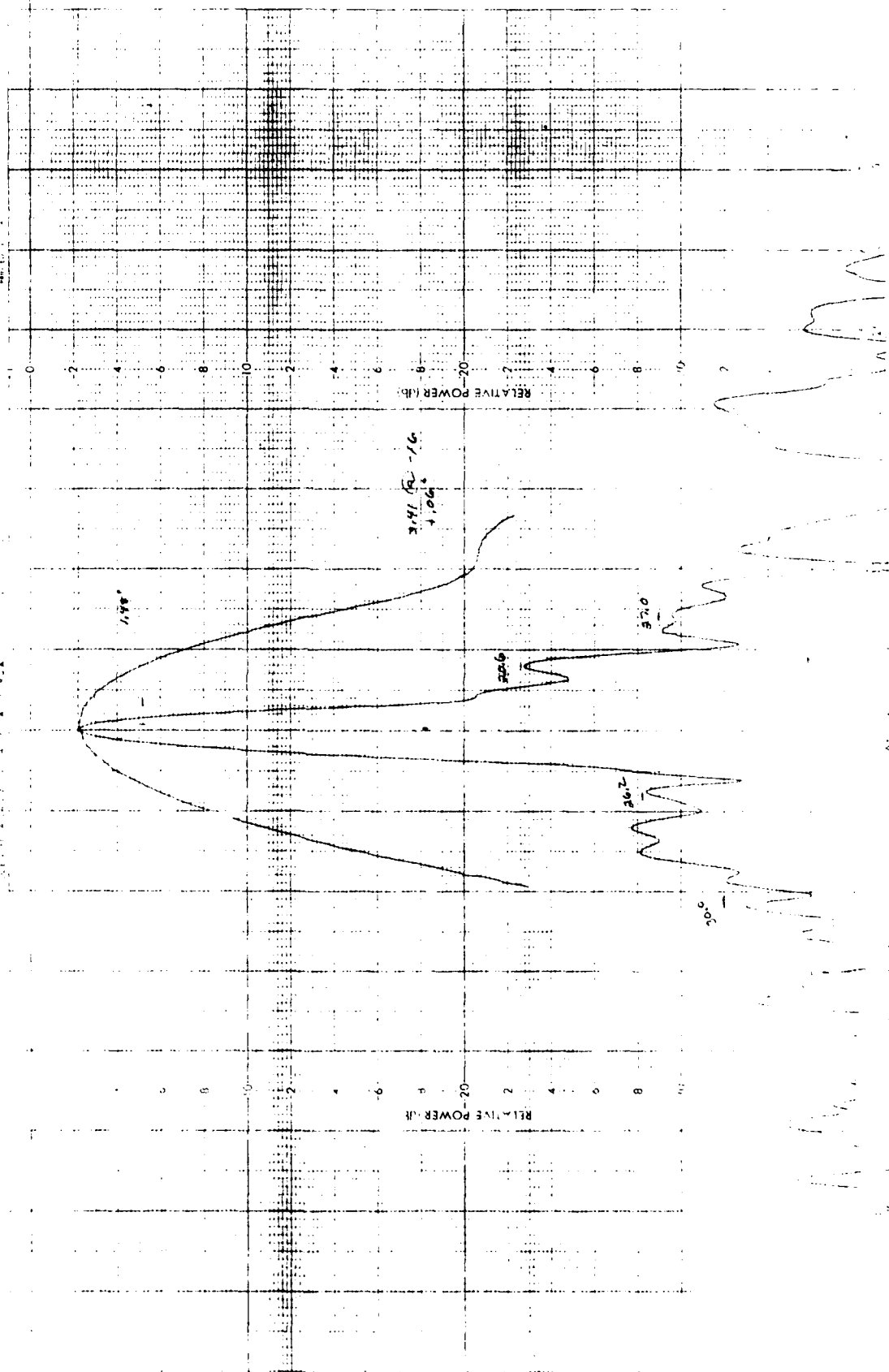
ENGR MRS RF TC

RENTAL LOW ENL RNDOME ON

200 MZ CTEL

Radome

270 42

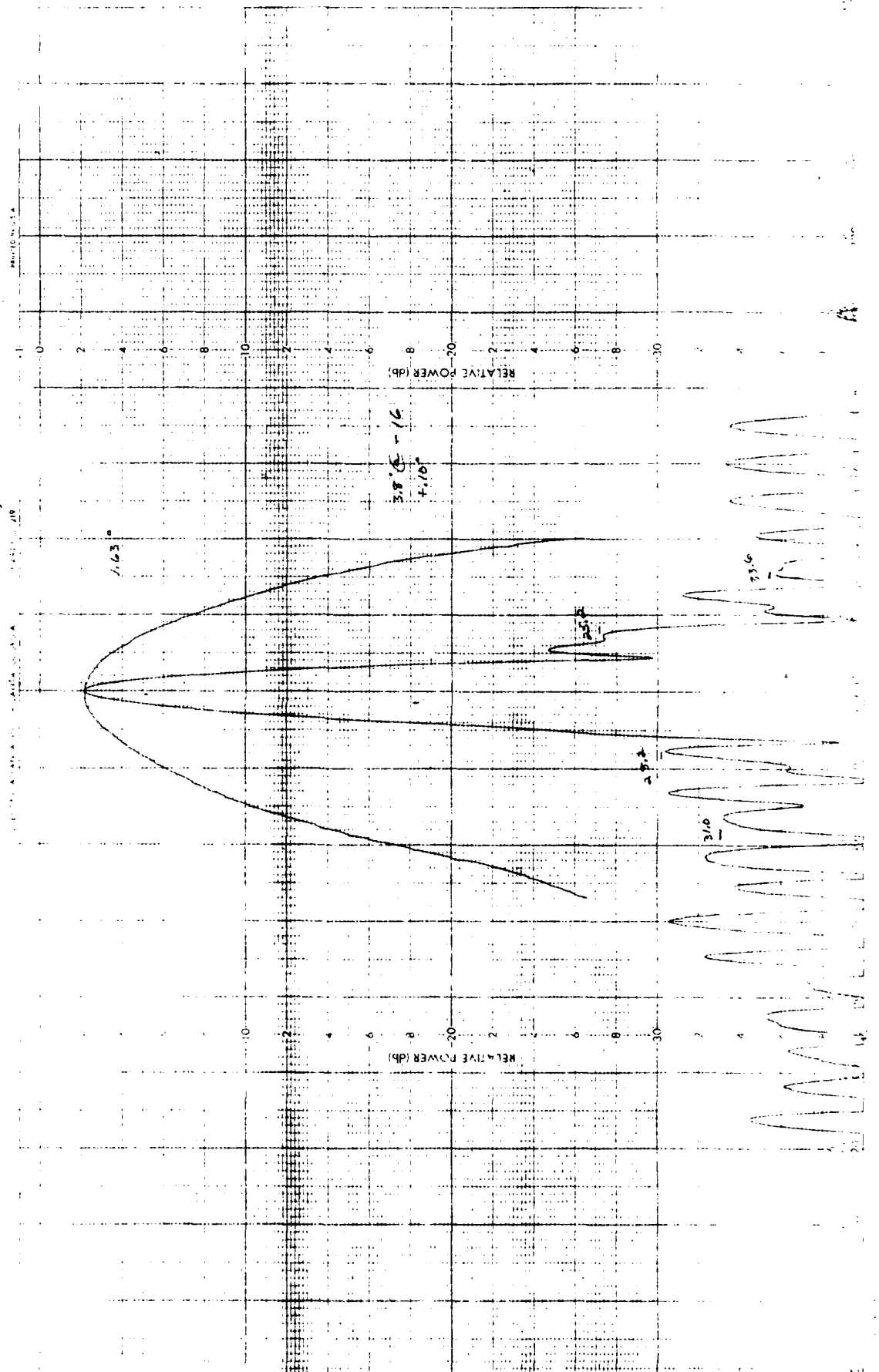


0.42 - 20.56

ENGR APS RF TC

DATE 24 JUL 81

129855



293672

ENGR APPS RF TC DATE 24 AUG 51

996-06
LOW END RADOME ON
40° A2 - 30° FL

RELATIVE POWER (db)

RELATIVE POWER (db)

RELATIVE POWER (db)

RELATIVE POWER (db)

RELATIVE POWER (db)

RELATIVE POWER (db)

RELATIVE POWER (db)

RELATIVE POWER (db)

RELATIVE POWER (db)

143°

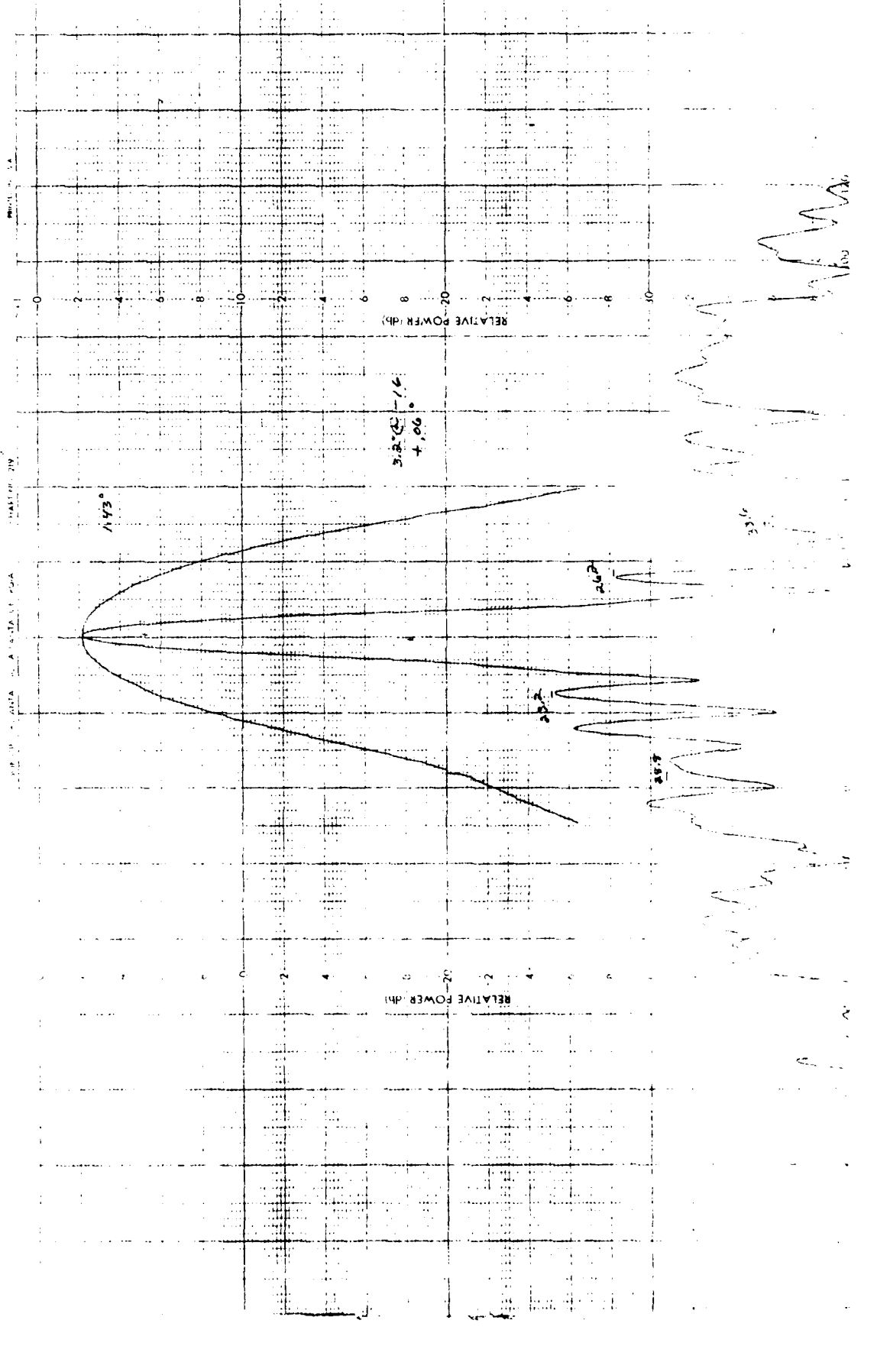
90°
+ 3.2 (0.16)

202

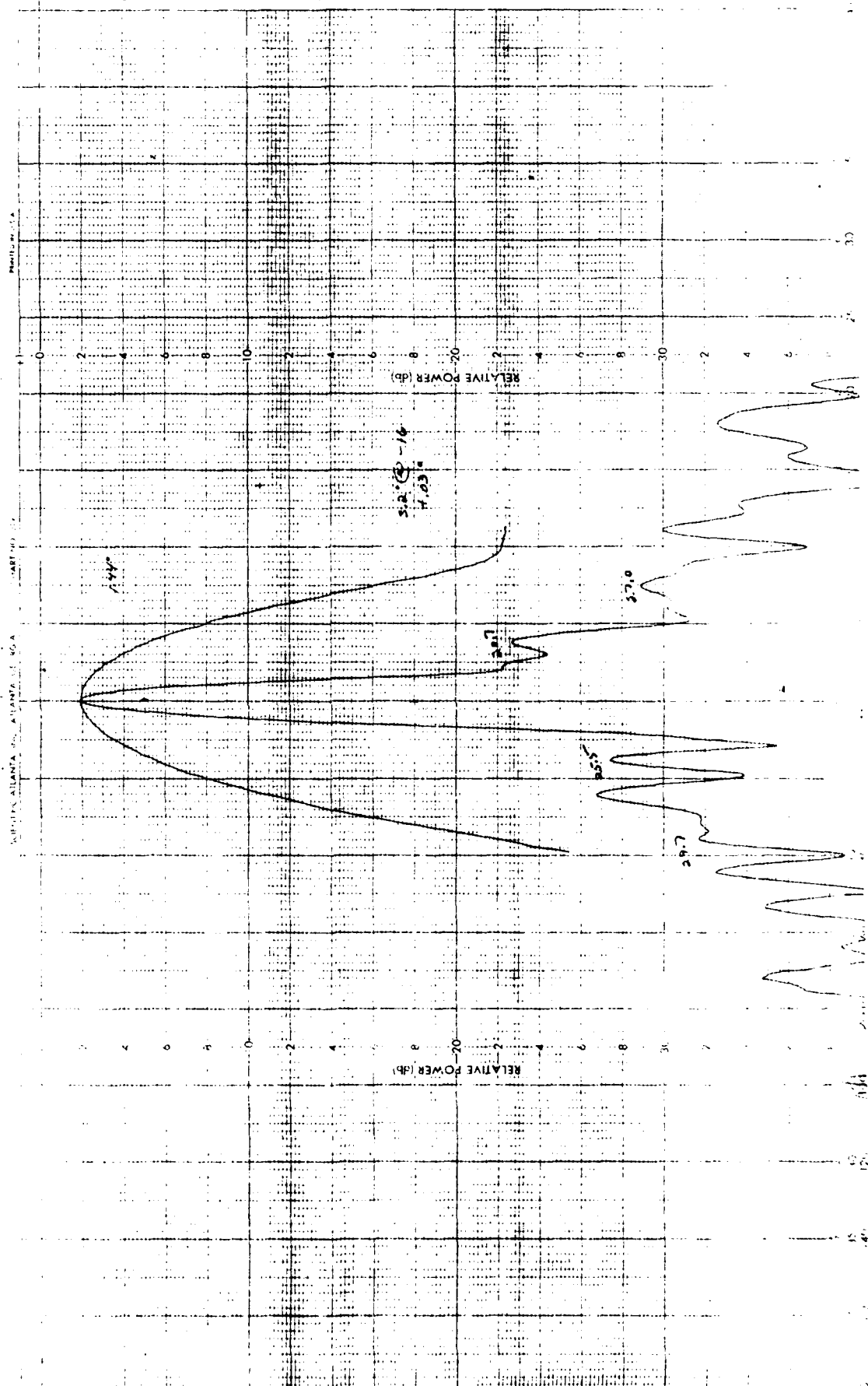
202

202

33°



ENCLOSURE
DATE 24 AUG 81
20



293667

DATE 24 JUL 67

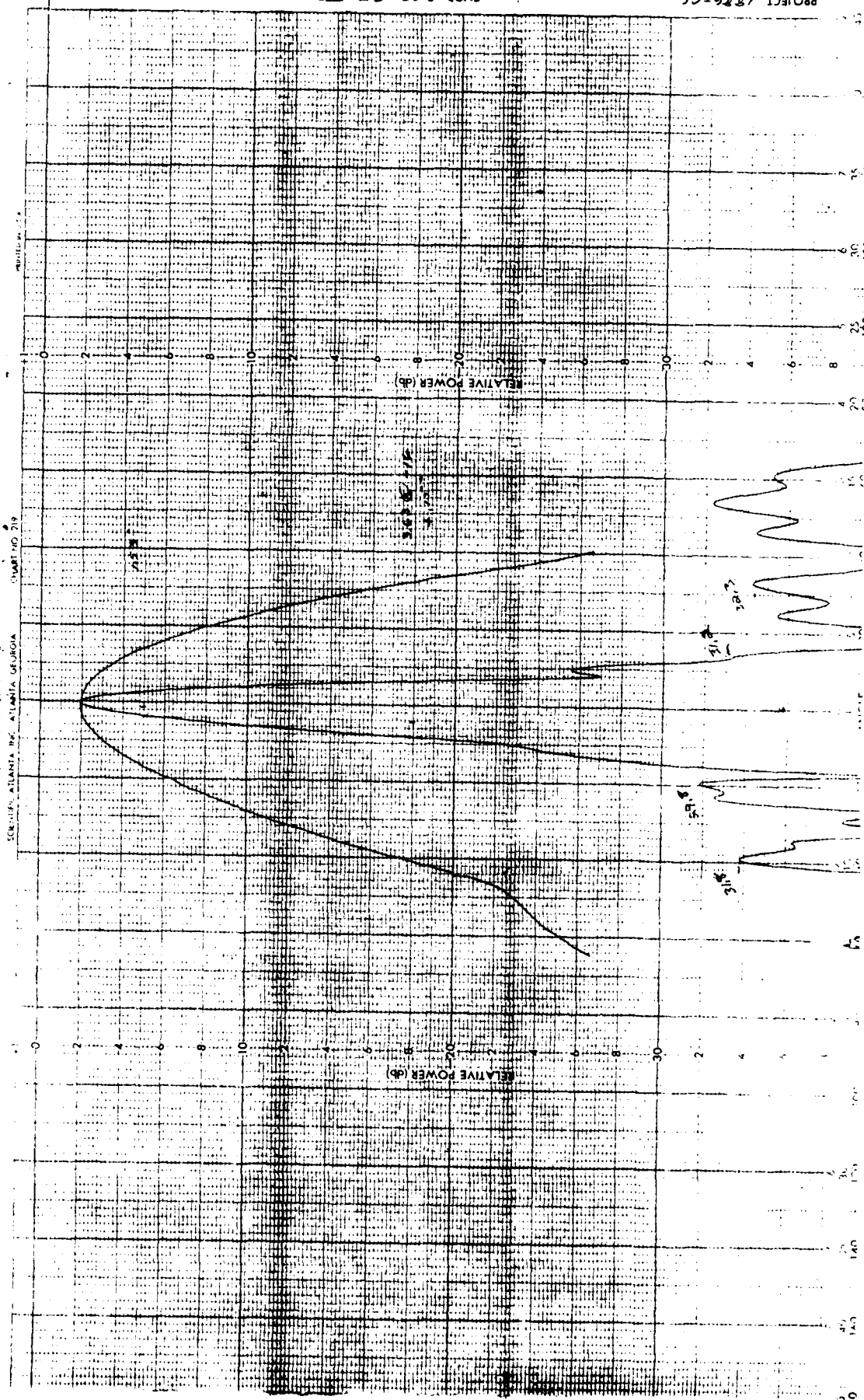
ENGRA 775 RF TC

ON

REMARKS LOW BAND

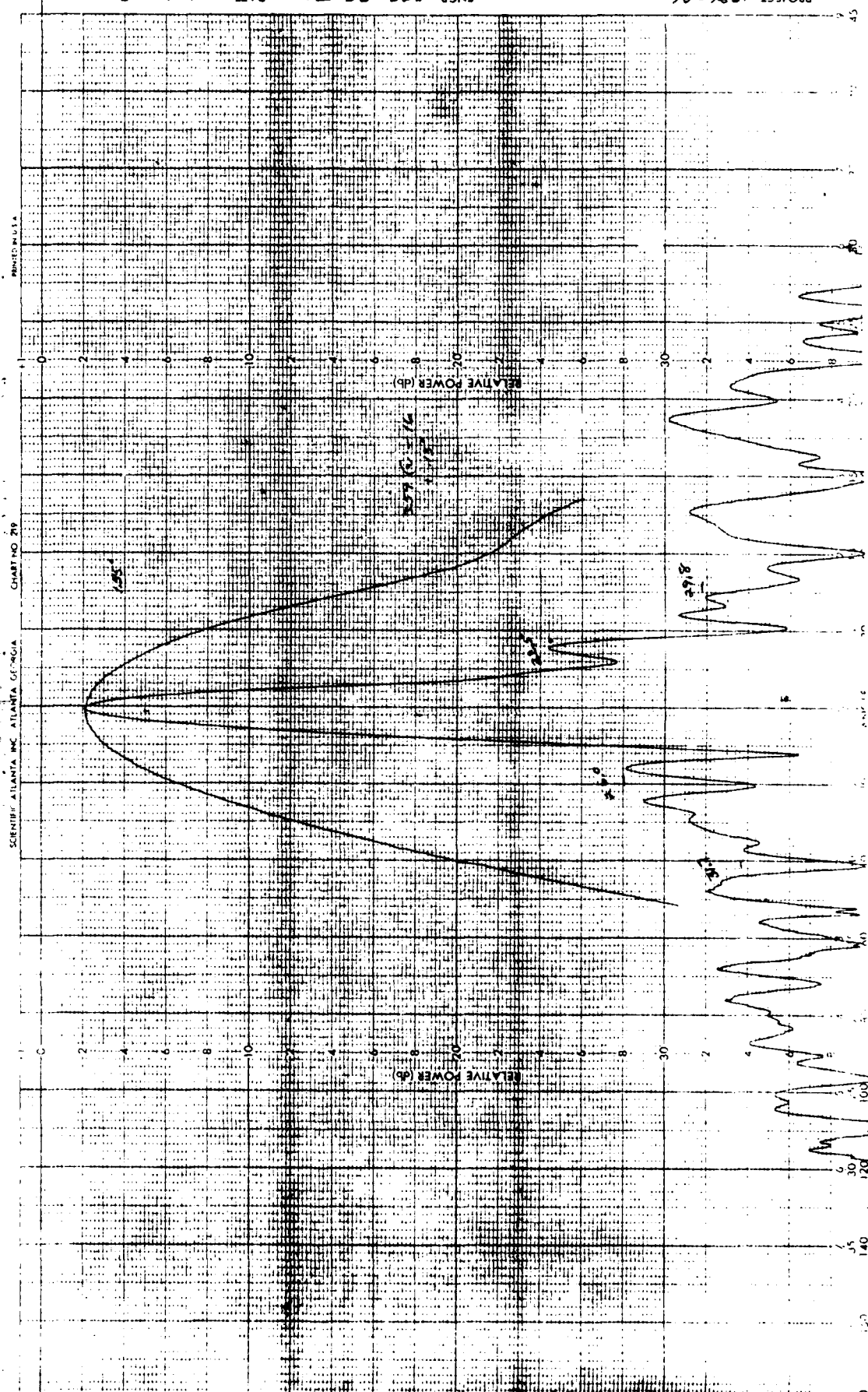
C⁰AZ +20°FL

PROJECT 1886-02

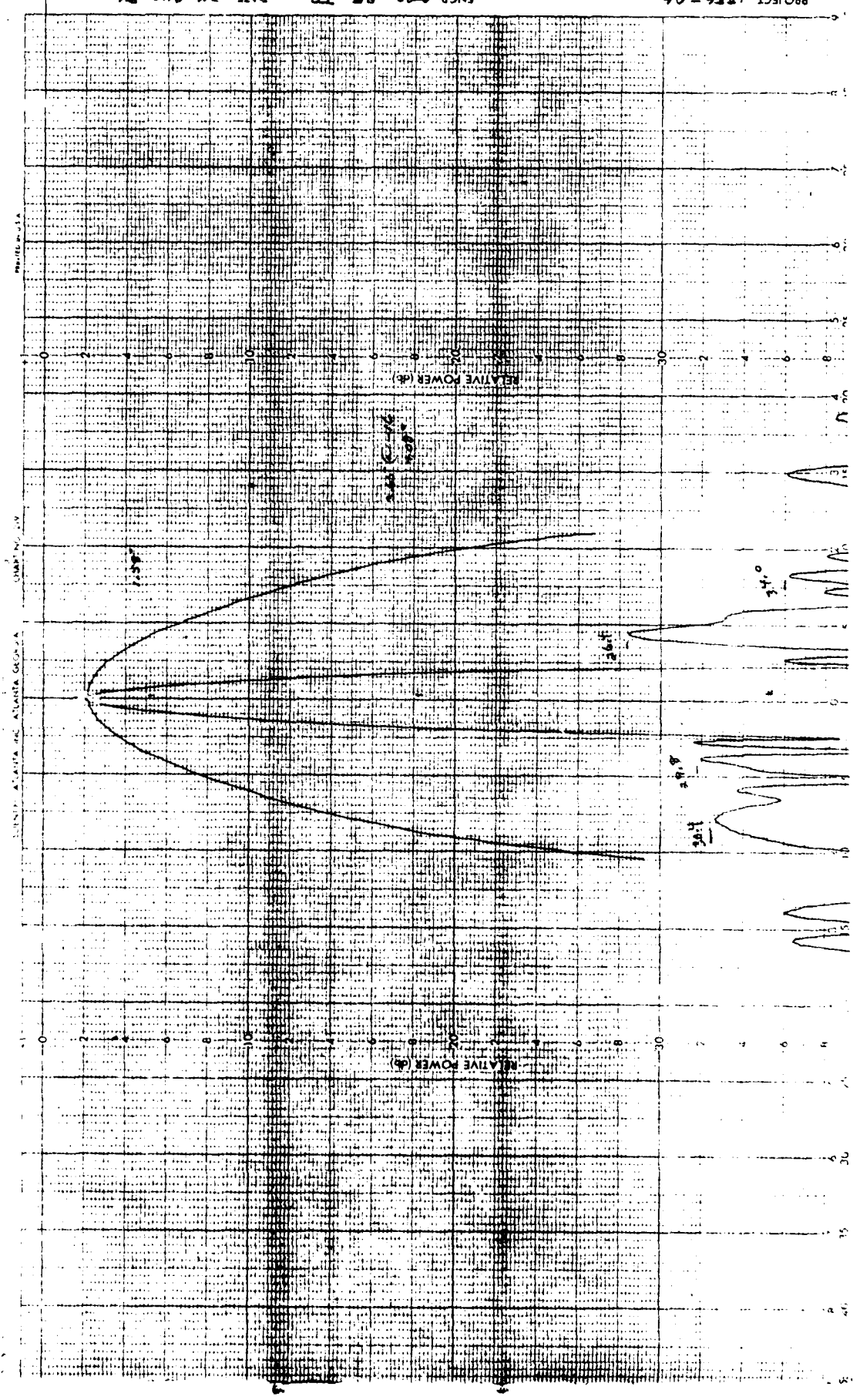


SCHEMATIC ATLANTA RFZ ATLANTA GEORGIA

CHART NO 219



PROJECT 186-06
 21- REMARKS LOW BAND RADOME ON
 ENGR 475 RF TC DATE 24 AUG 81
 180.42 + 20.EL
 293669



293670

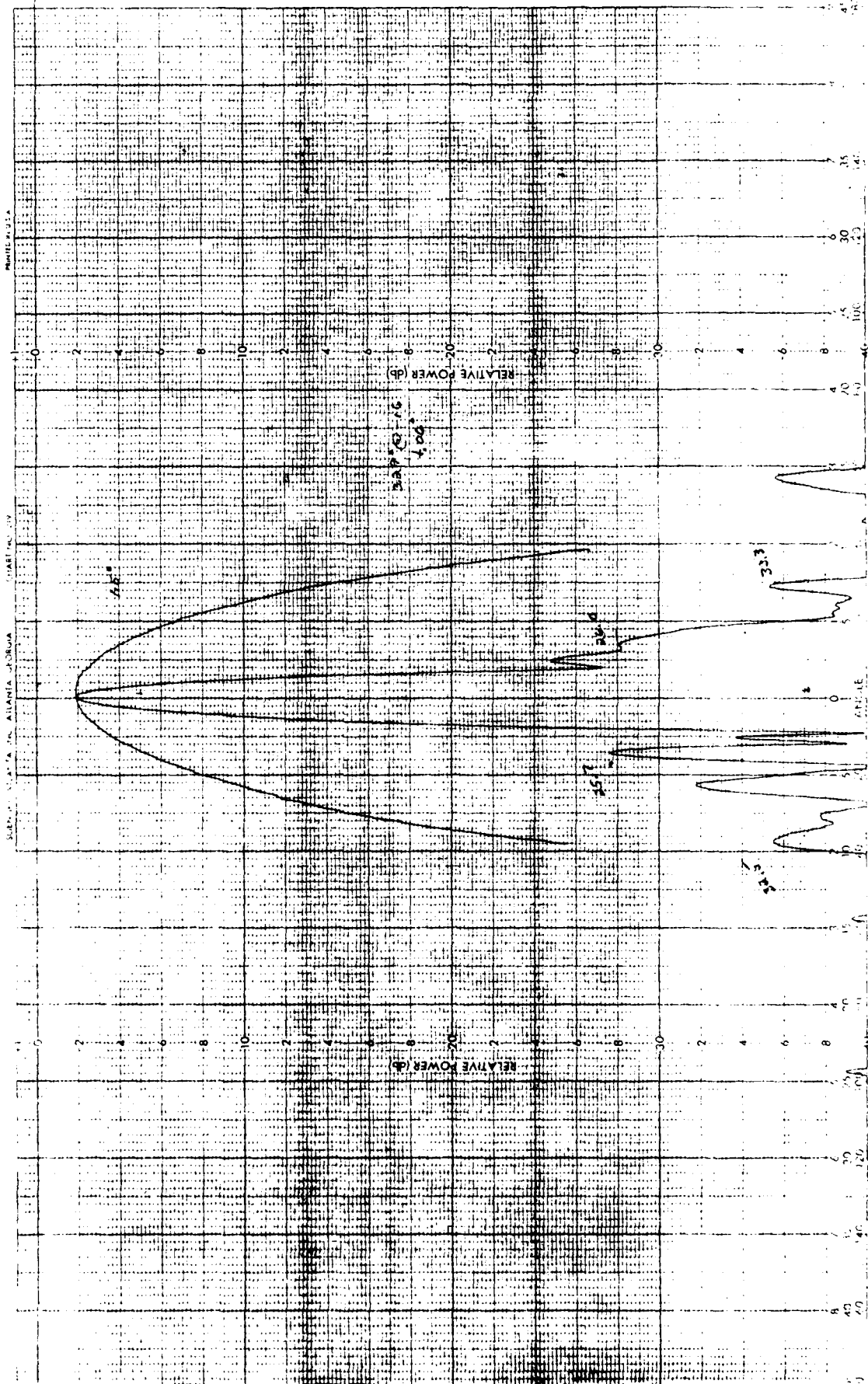
DATE 21 AUG 81

ENGR MRS R R TC

REMARKS LOW BAND RADIOME ON

PROJECT 1986-06

4200 42 130° EL

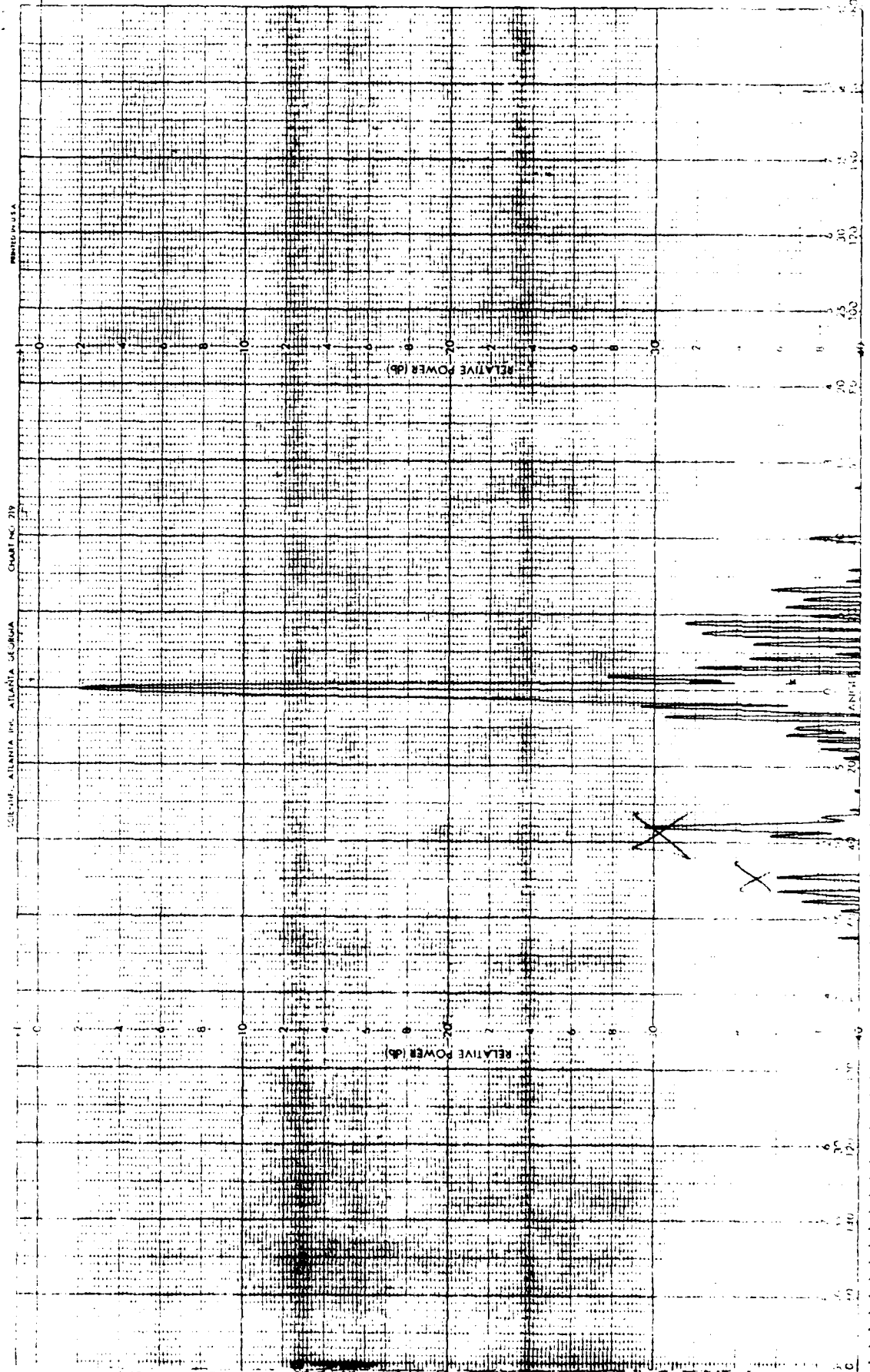


293675

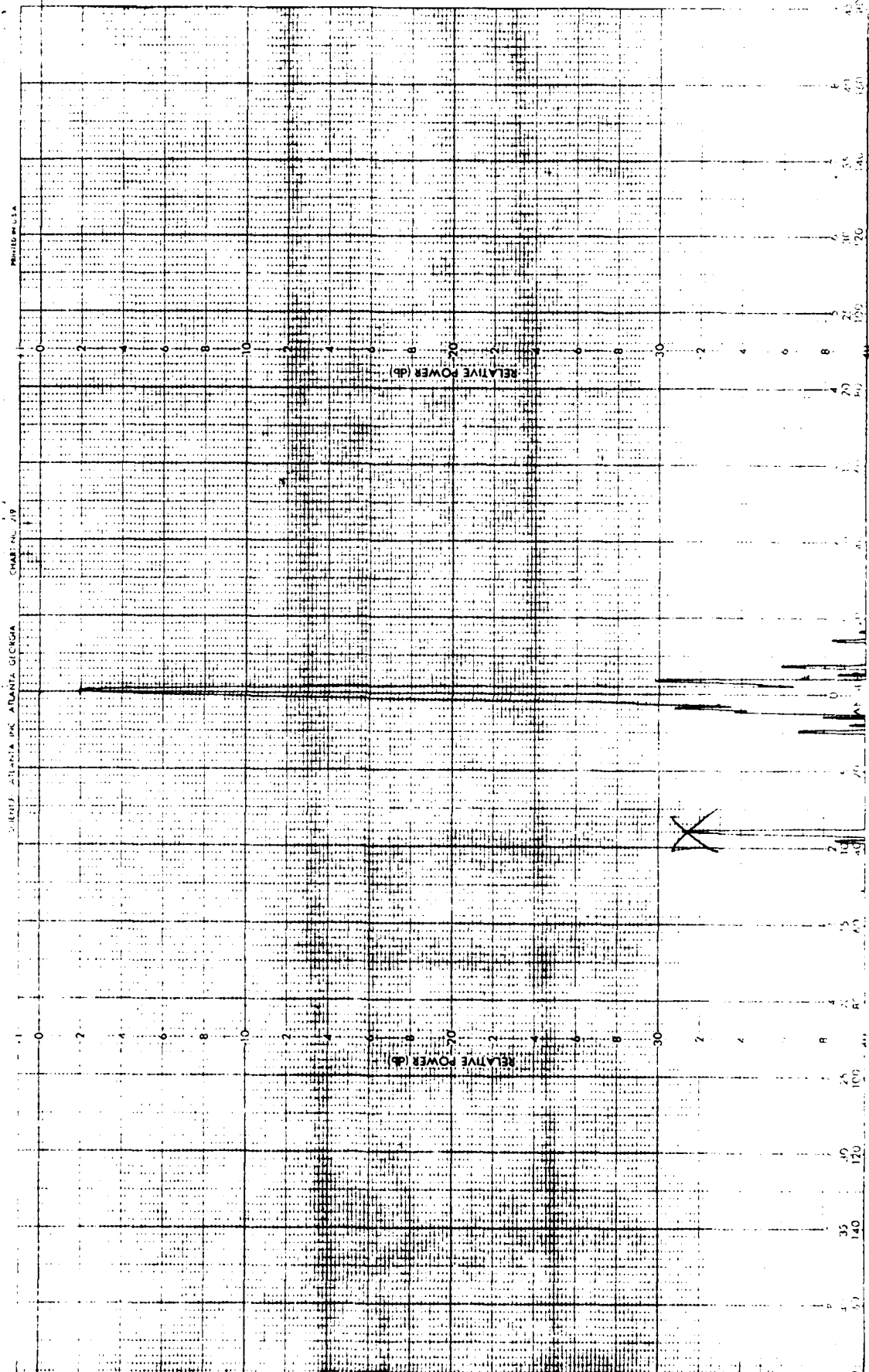
DATE 24 AUG 91

ENGR APO3 ME TC

PROJECT 1886-06
-41- REMARKS LOW BAND RADOME ON
360° RUN AT 0° EL ANGLE



PROJECT 1886-06
 -51- REMARKS LOW BAND NO RADOME
 360° RUN AT 0.92 0° EL ANGLE
 ENGR MTS RF TC
 DATE 24 AUG 81
 293677



CHAR. NO. 19
 SOURCE: ATLANTA INC. ATLANTA, GEORGIA

293676

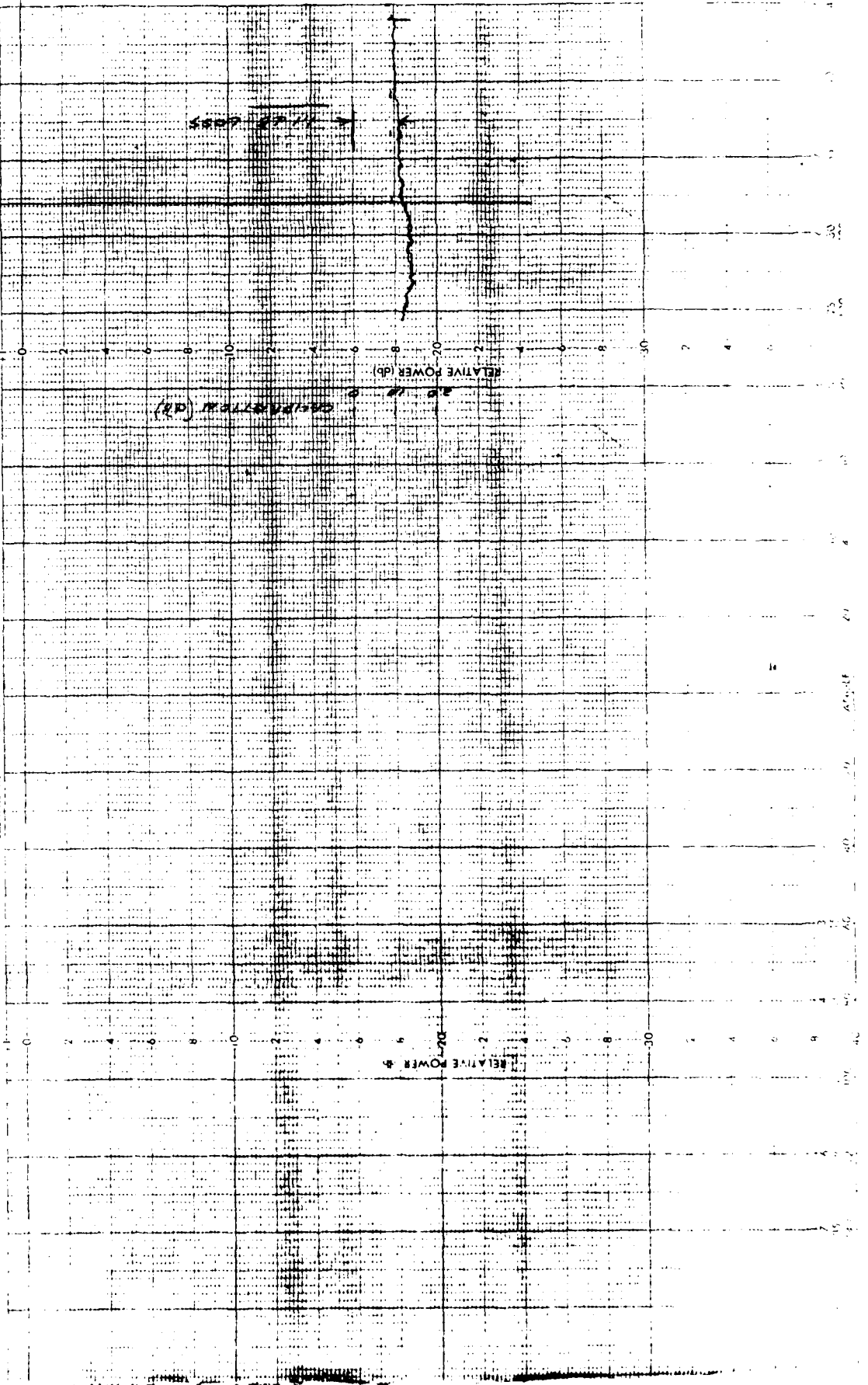
ENGR APPS RF 7C DATE 24 AUG 81

PROJECT 1986 LC
REMARKS LOW BAND TX LOSS

Wanted in USA

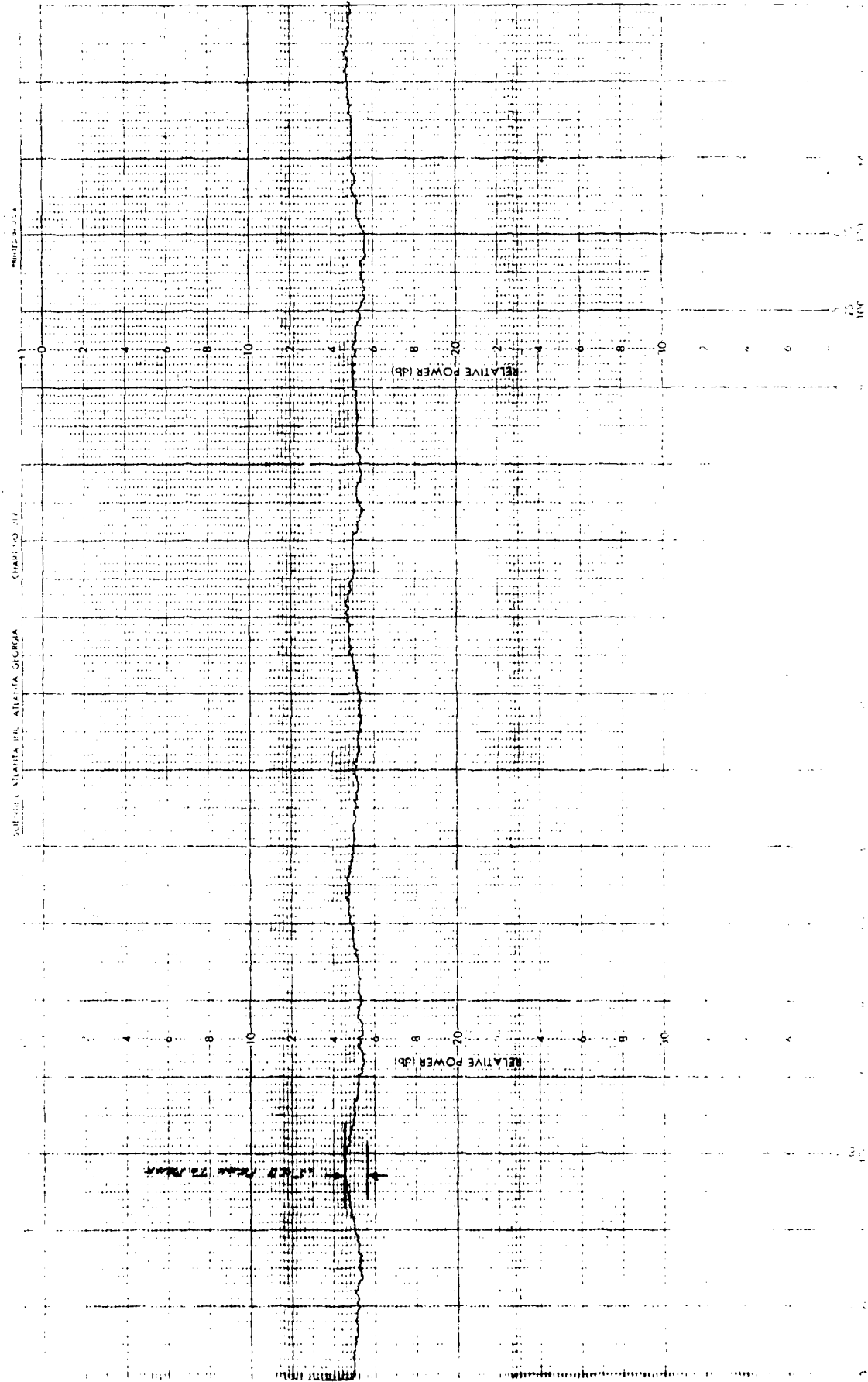
CHART NO 118

SCIENTIFIC ATLANTA INC ATLANTA GEORGIA



2936660

PROJECT 996-02
REMARKS LOW LOSS
VARIABLEITY RUN AT 0° EL ANGLE
ENGR 475 RF TC DATE 24 AUG 81



293662

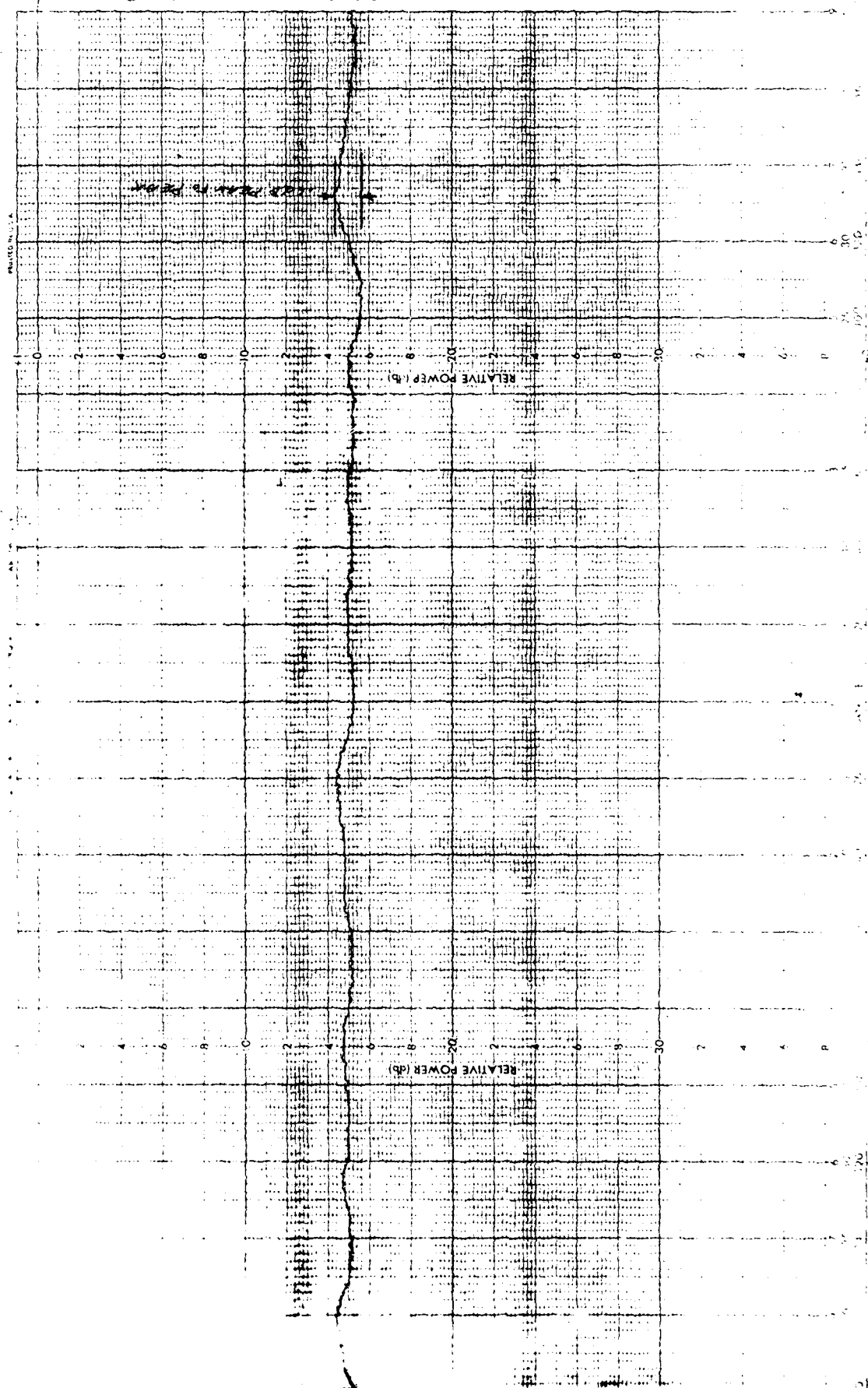
DATE 24 AUG 81

ENGR APPS NF TC

VARIABLEITY RUN AT -20° EL ANGLE

REMARKS LOW BAND 360° LOSS

PROJECT 996-02

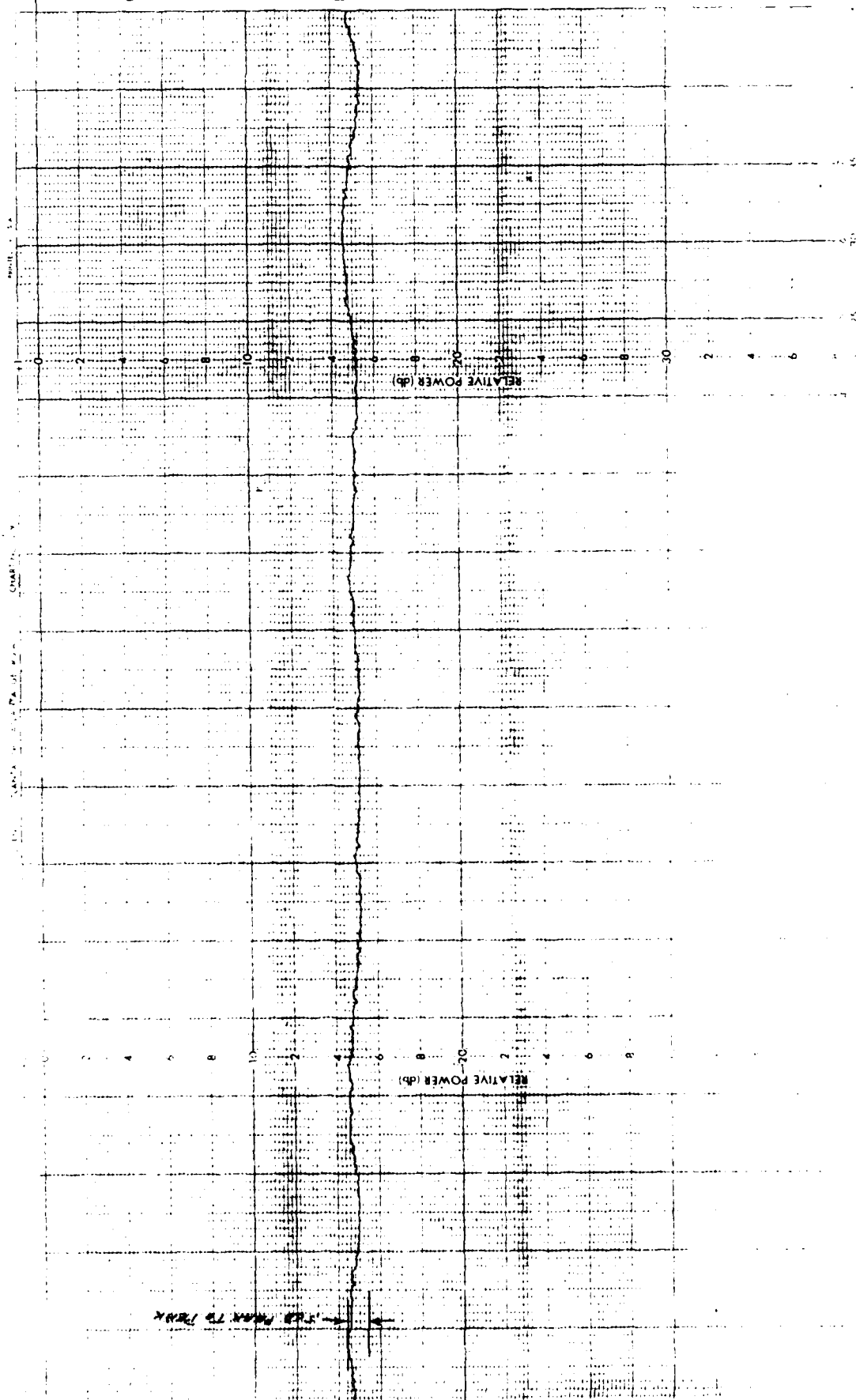


293661

DATE 24 AUG 61

ENGR AHS RF 72

PROJECT 386-06
REMARKS LOW BAND 360° LOSS
-61- VIBRABILITY RUN AT +20° EL ANGLE



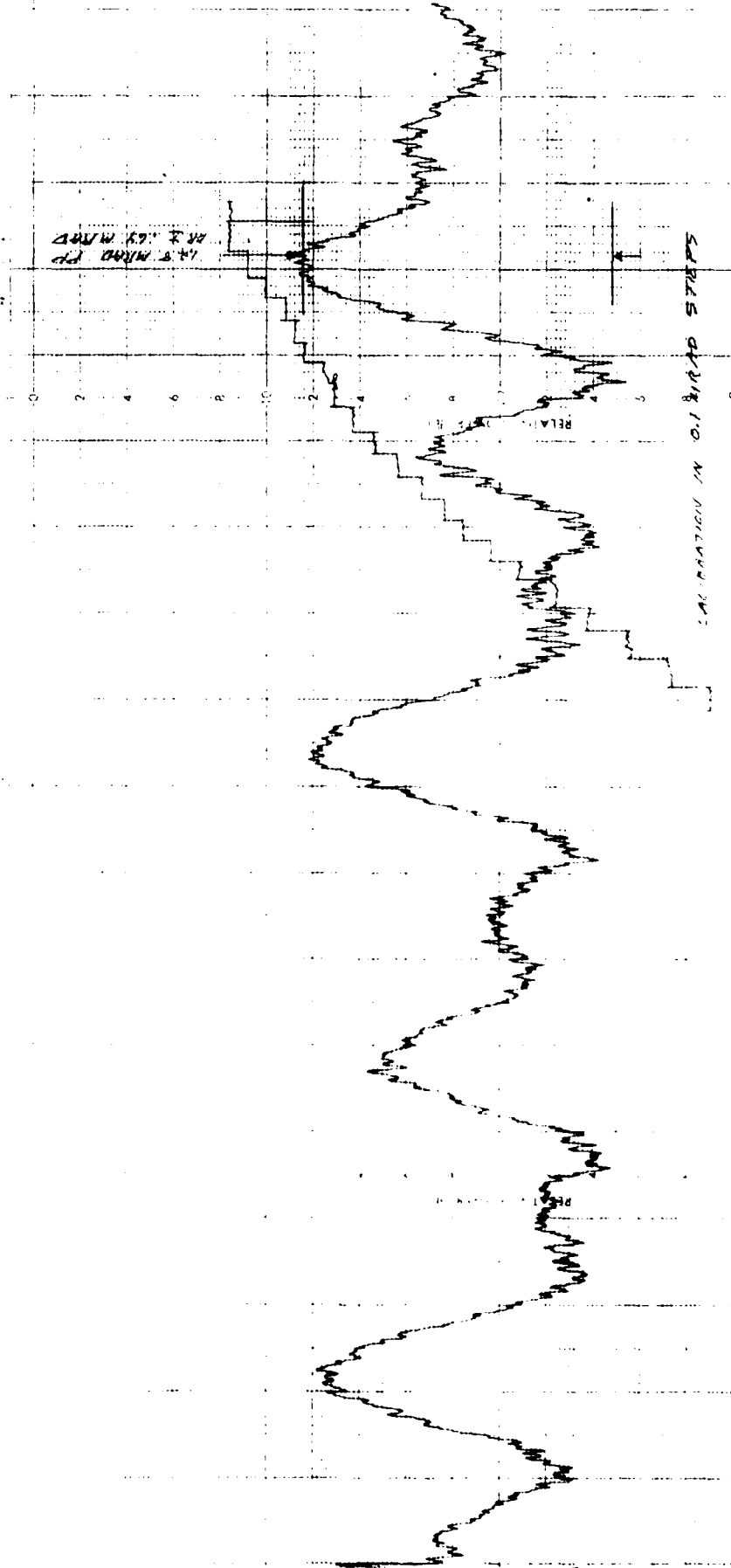
→ -5dB MARK TO 100K

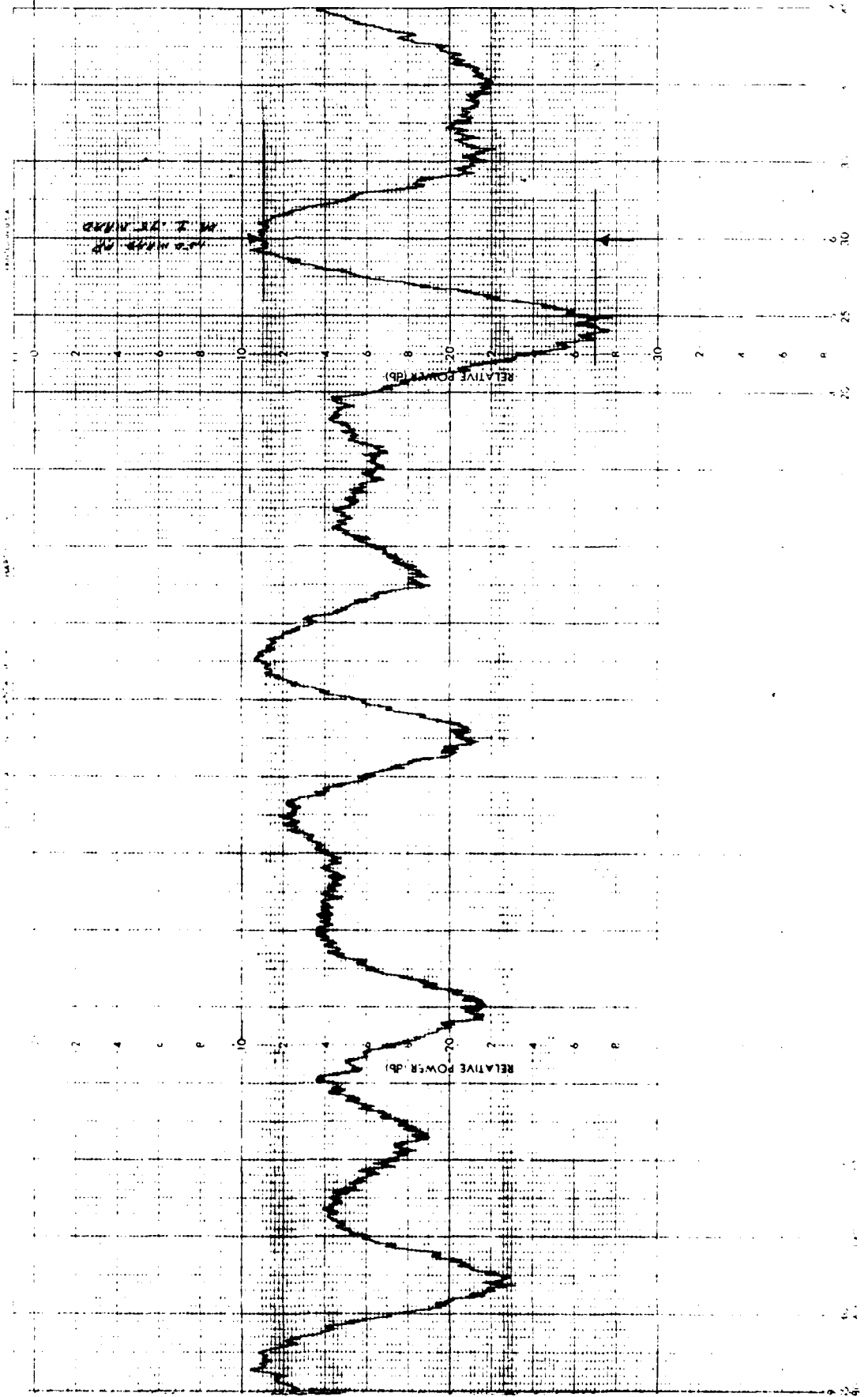
293653

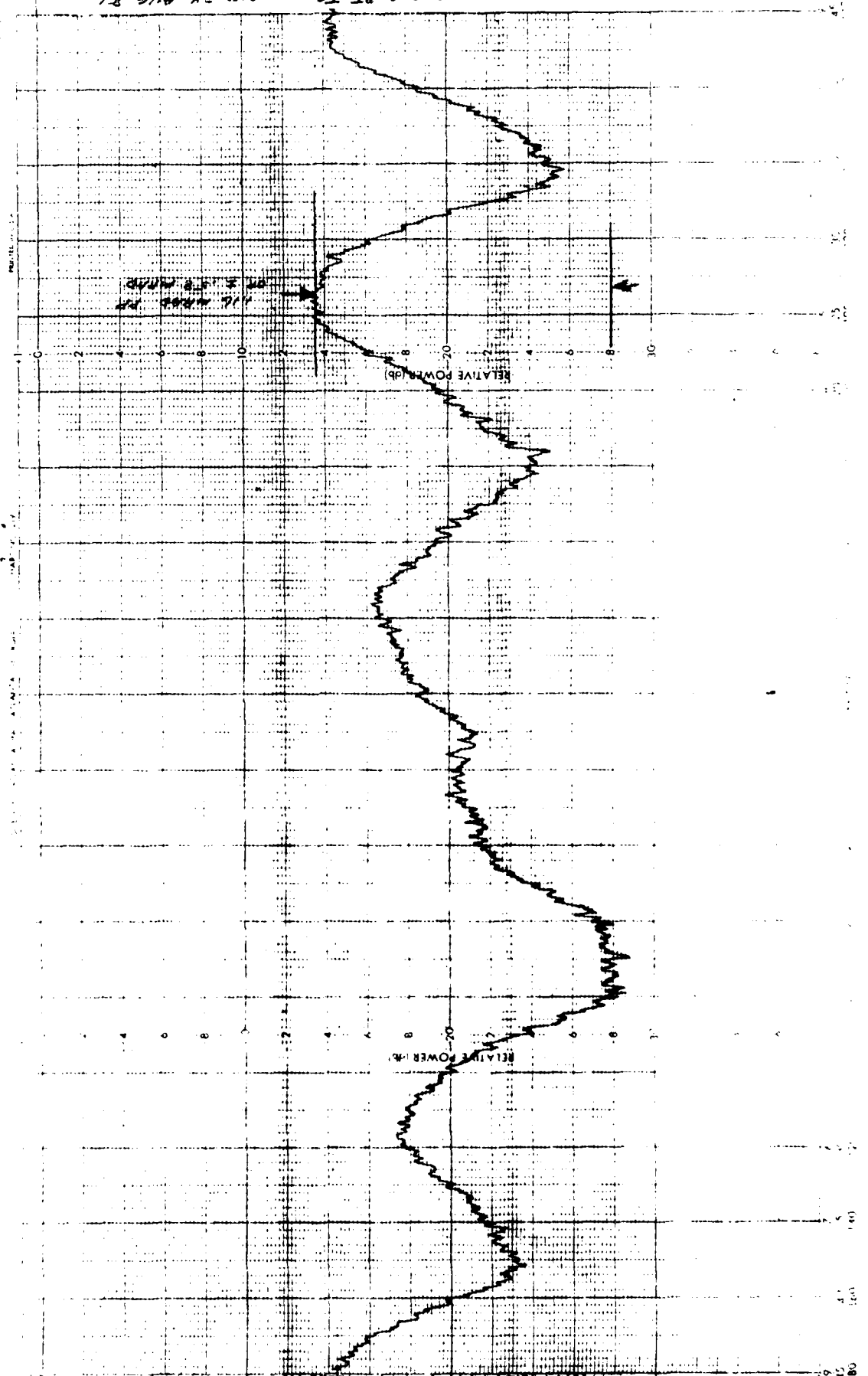
DATE 24 AUG 81

ENGR 1415 SF TC

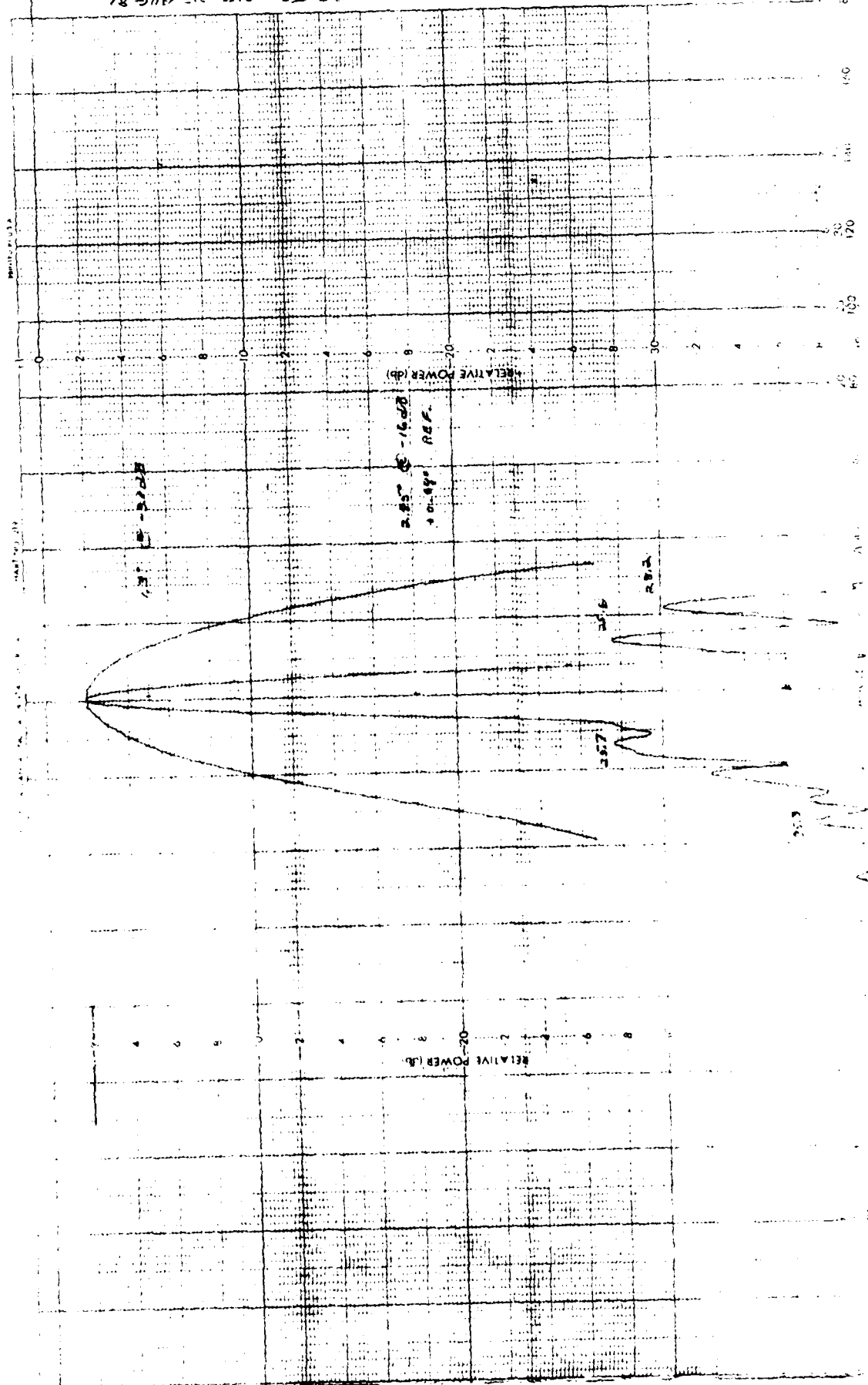
23 1000' 200' 200' BORE SIGHT
200' HT 100' ANGLE







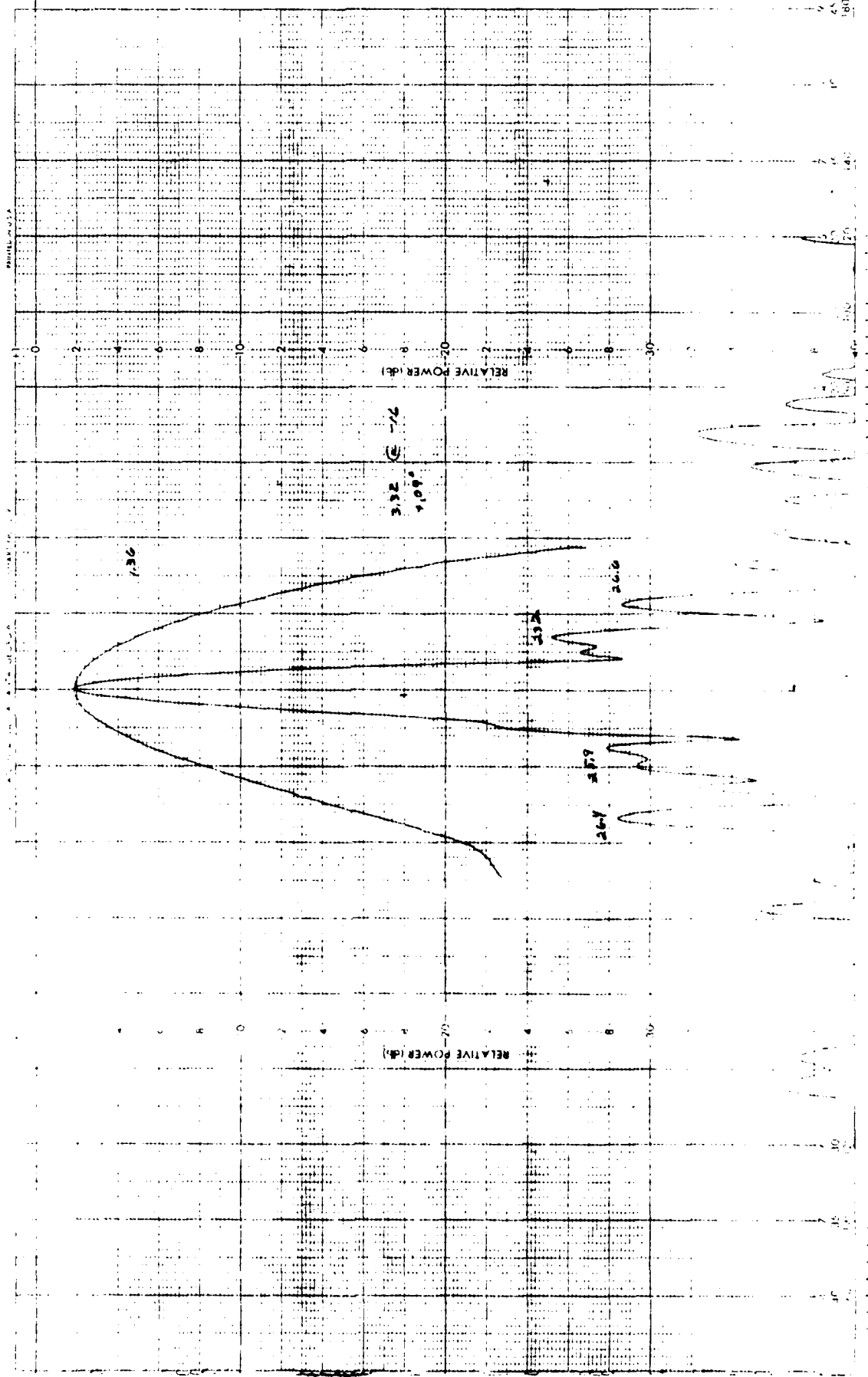
PROJECT 1886-02
 REMARKS: MILD ECHO - NO RADIATION
 C-42 C-42
 ENGR M75 RF TC DATE 25 AUG 81
 293627



293535

ENGR 1715 RF TC DATE 25 AUG 81

PROJECT 1996-02
REMARKS 1110 BAND RNDINE ON
0.42 S.F.L



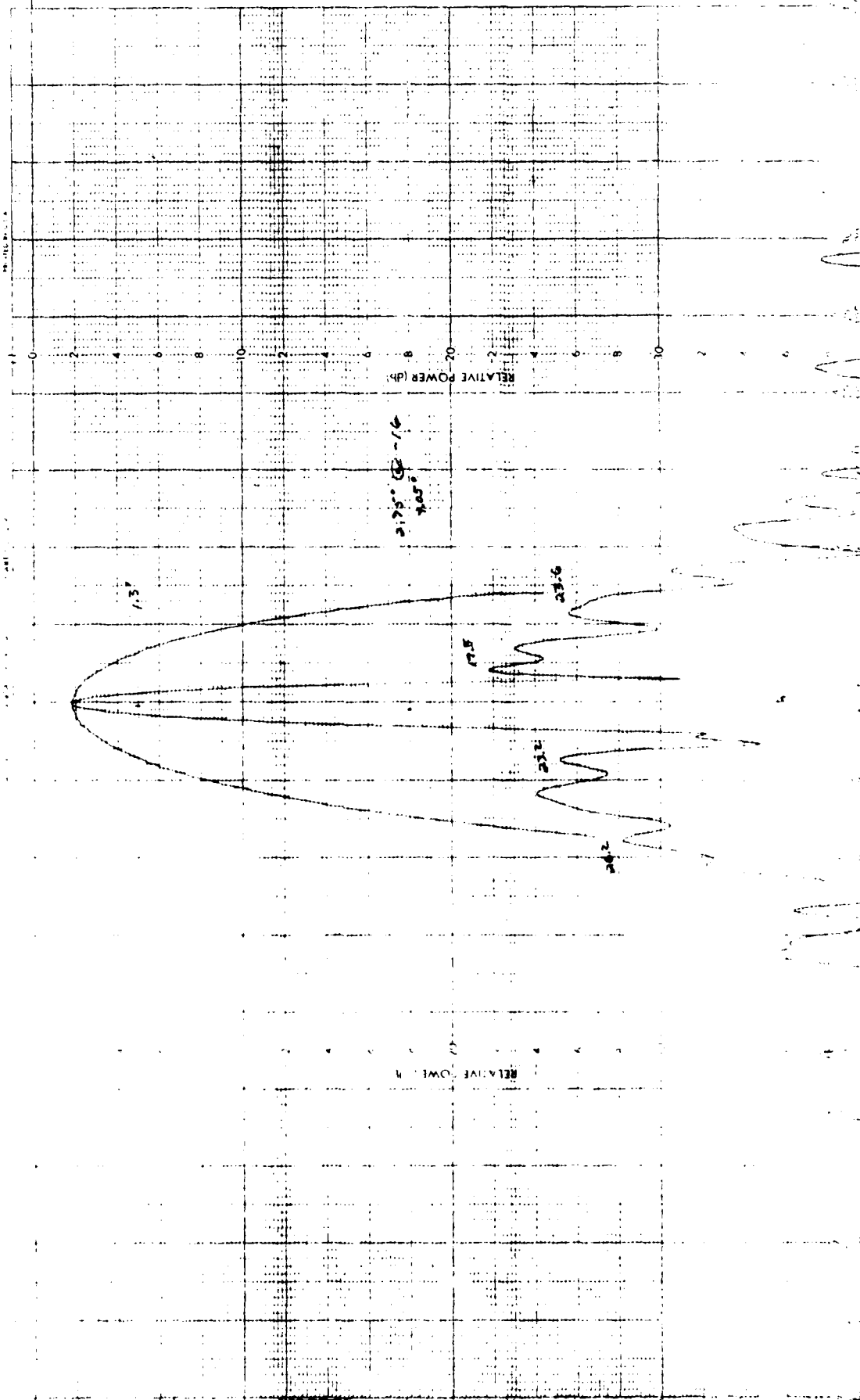
293636

DATE 25 AUG 81

ENGR NPS RF TC

PROJECT 1986-06

REMARKS 1110 CND RYDNE ON

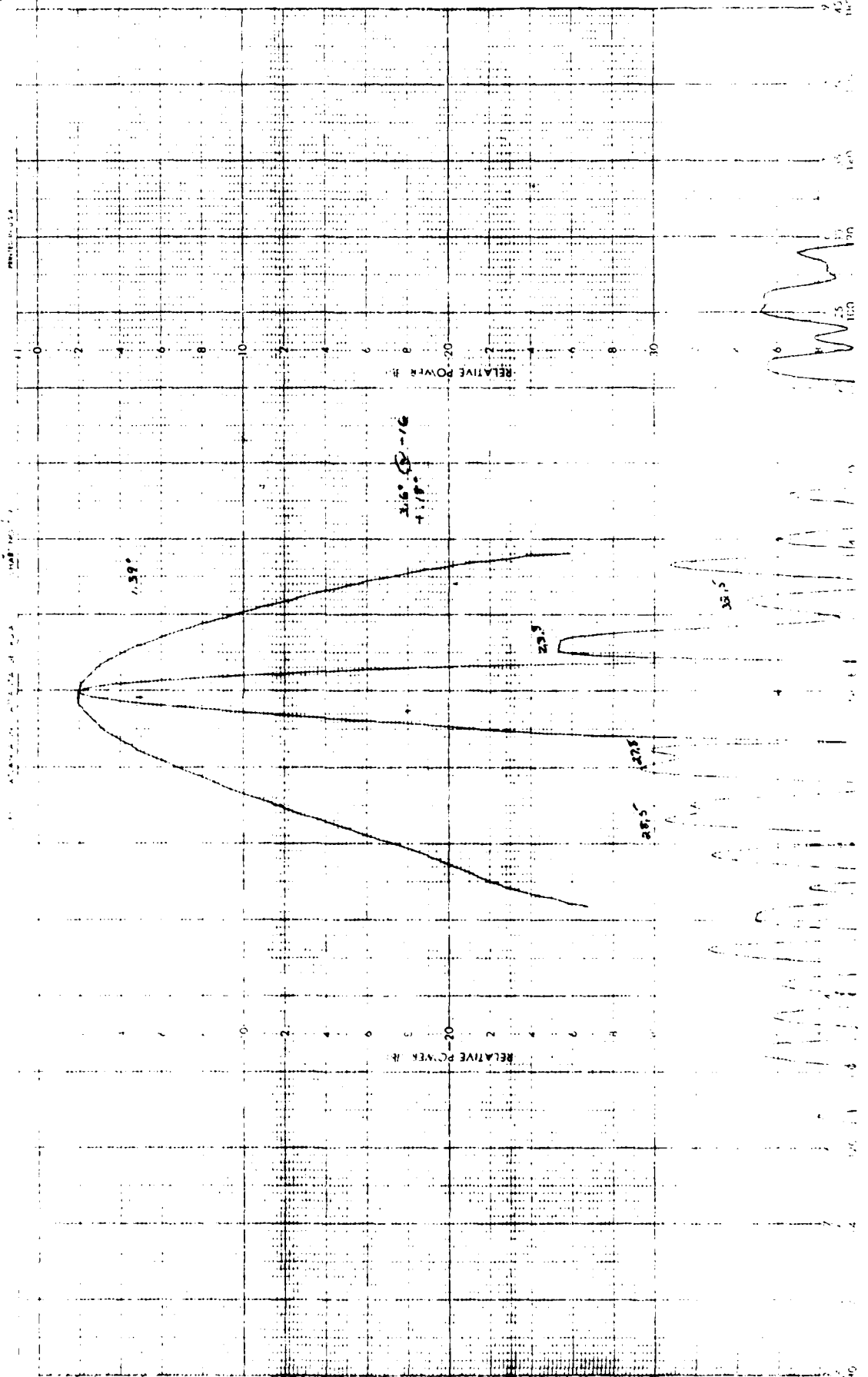


293637

DATE 25 AUG 81

ENGR APPS AT TC

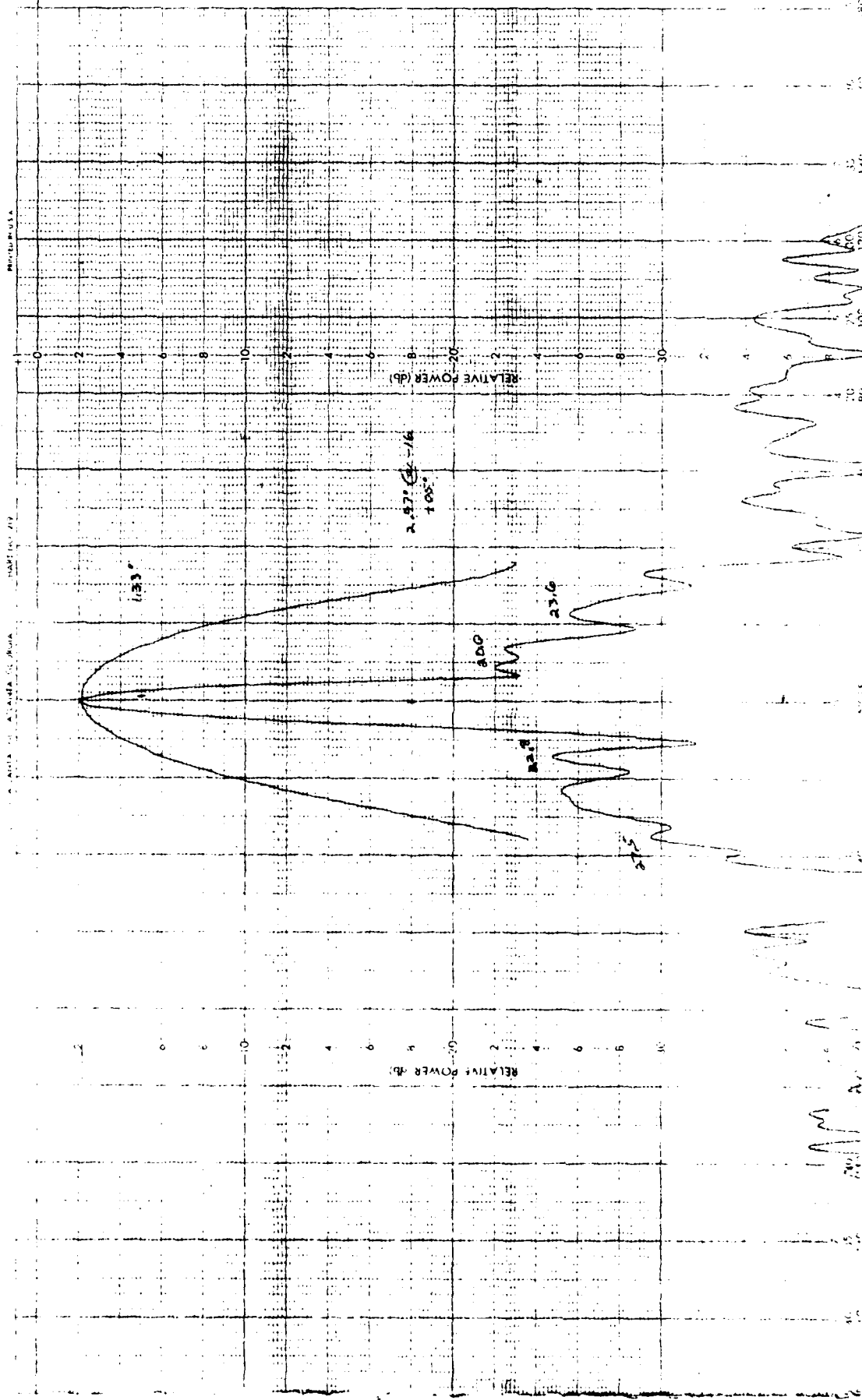
PROJECT 1986-CG
REMARKS 1111D BAND RAPIDONE CN



293638

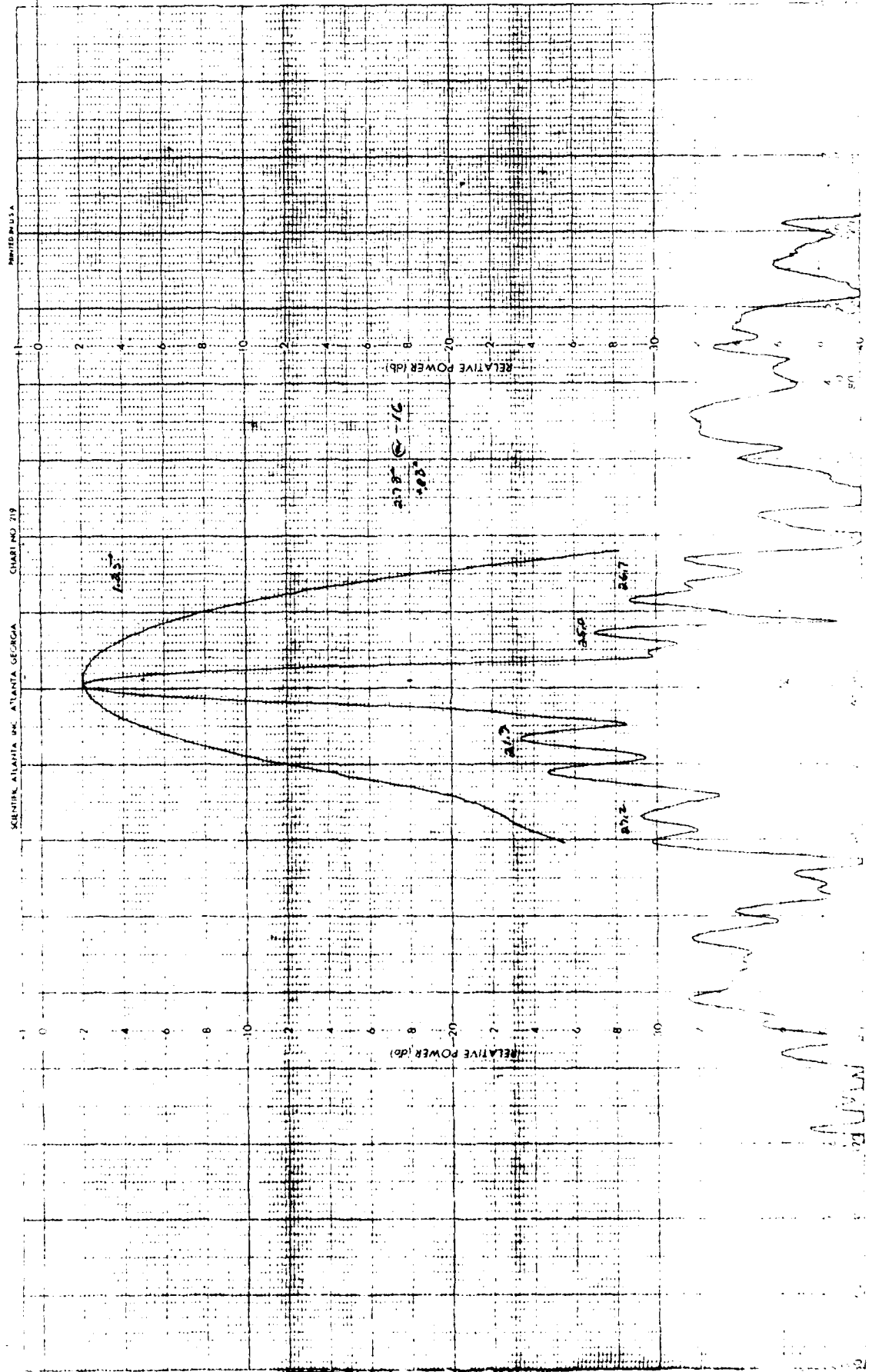
ENGR 4115 RF TC DATE 25 AUG 81

PROJECT 1996-06
-L2-BANDPASS NID LEAND RADOME ON
2701.42 0.EL



293644

ENGR APPS RF TC DATE 25 AUG 81

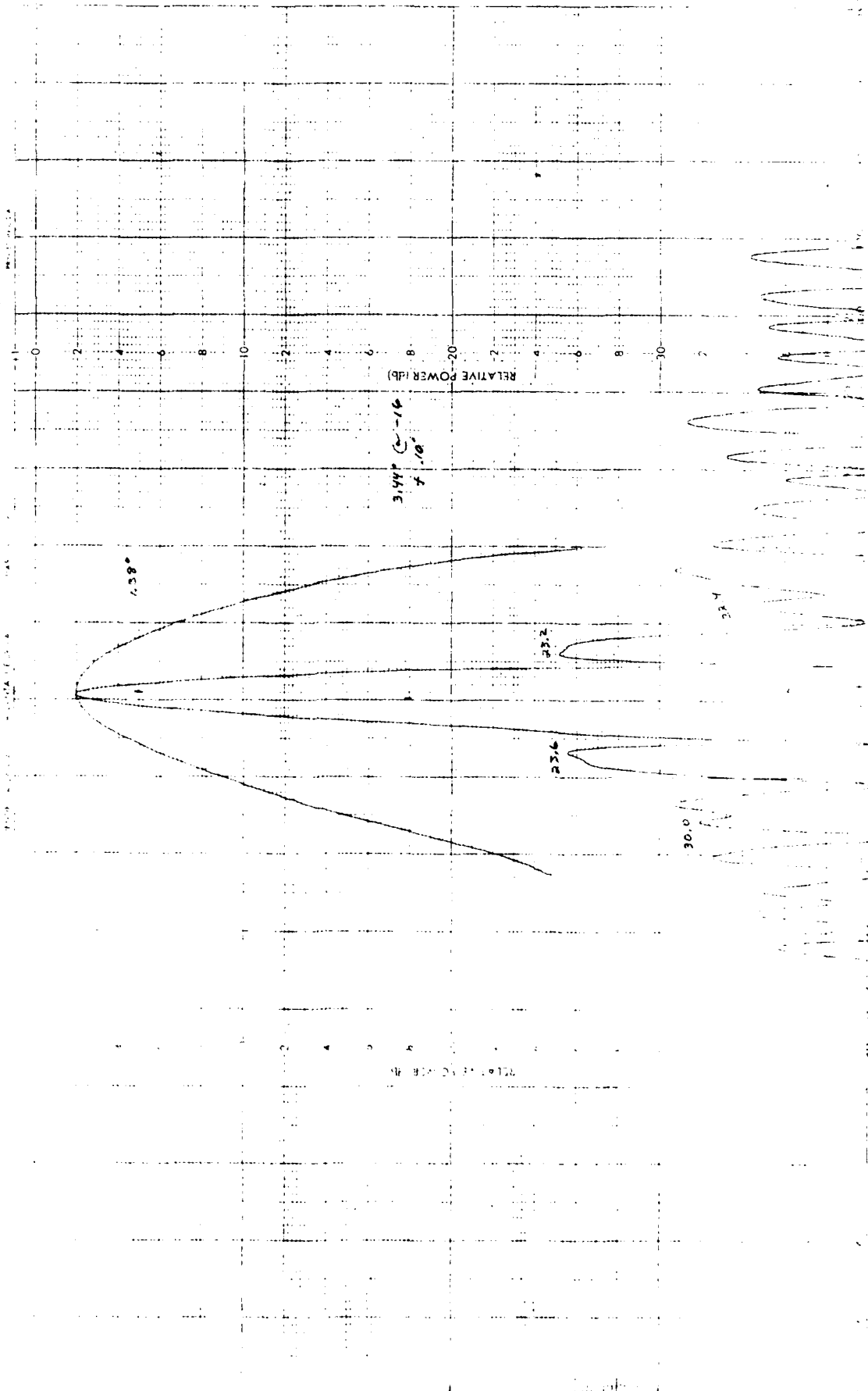


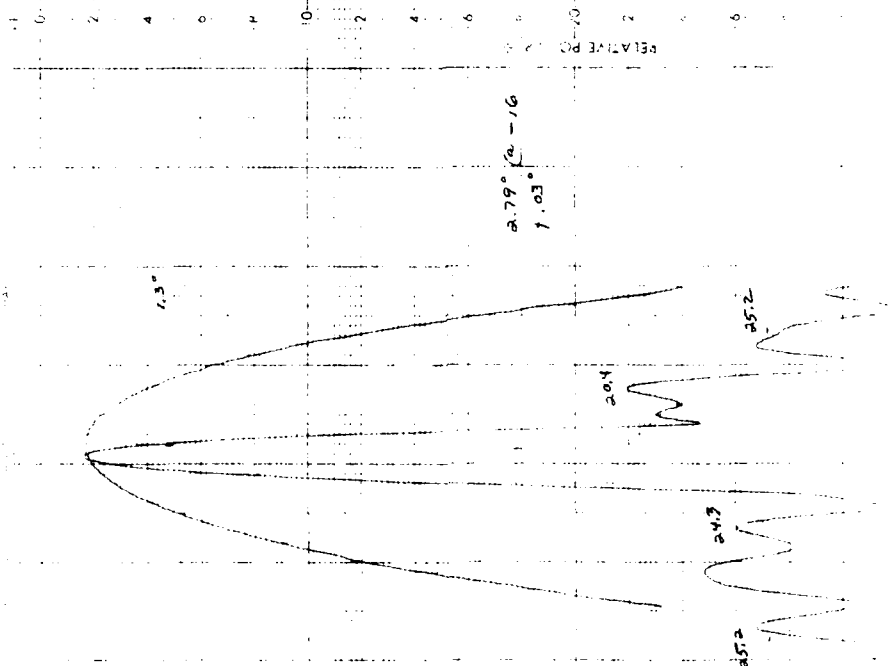
293645

DATE 25 AUG 81

ENGR AMS RF TC

150° AZ - 30° EL
-02- REMARKS AND BAND RADOME ON





F/G 17/9

AUG 81

N00175-80-C-0345

NL

2.4.1.

20.

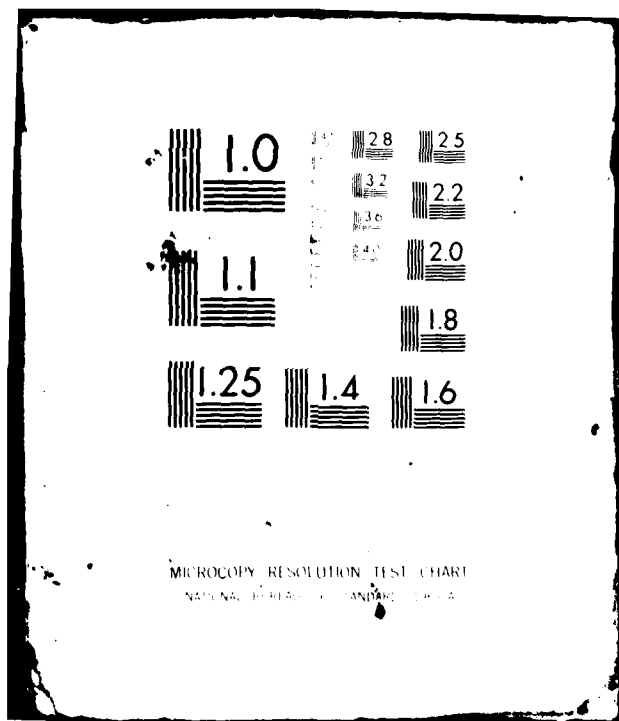
END

DATE:

FILMED

12-81

DT19

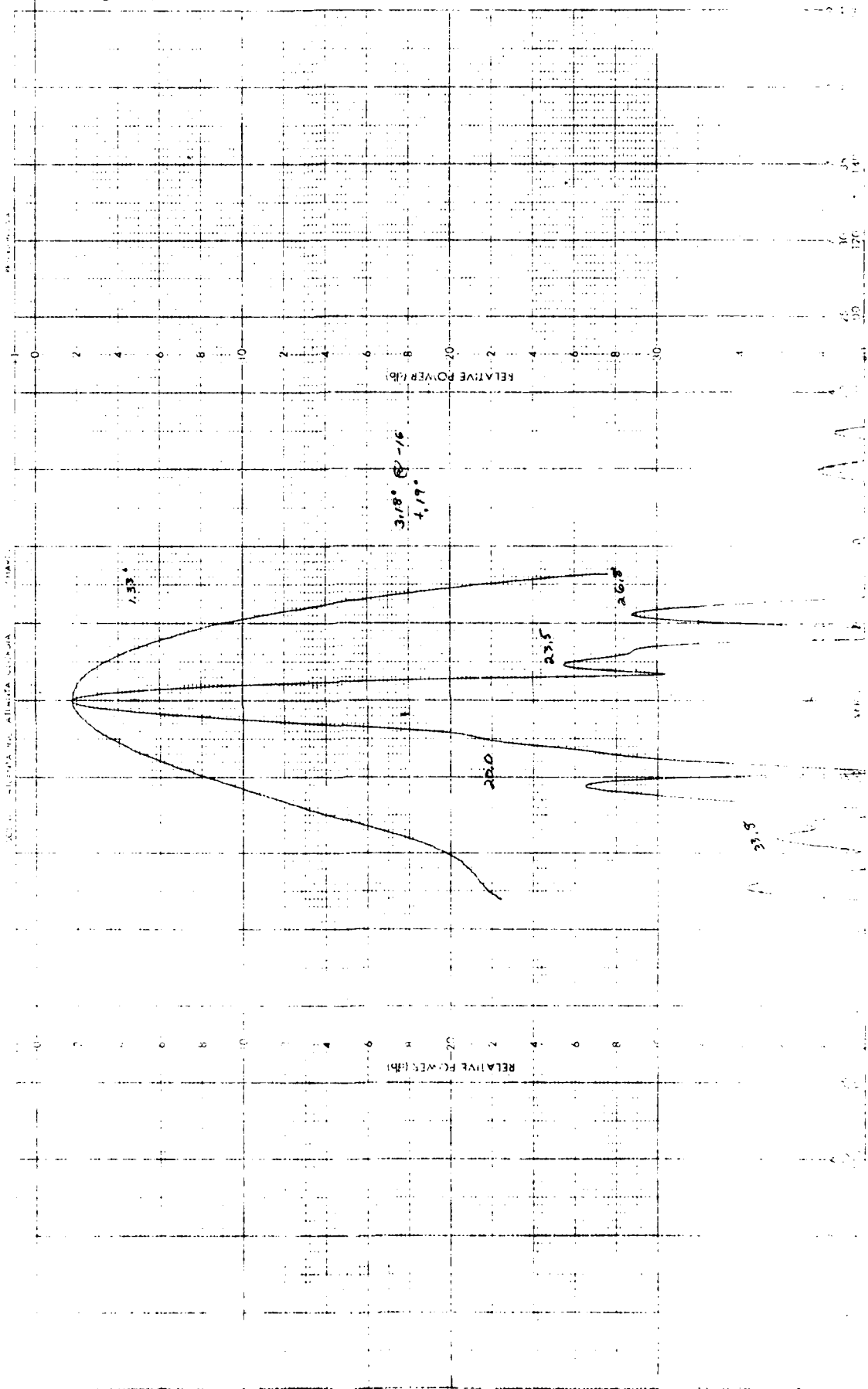


249639

ENCL M-25 I/F TC DATE 25 AUG 51

PROJECT 1896-C6
MID BAND RHYTHM ON
0° AZ 730° EL

-23- REMARKS

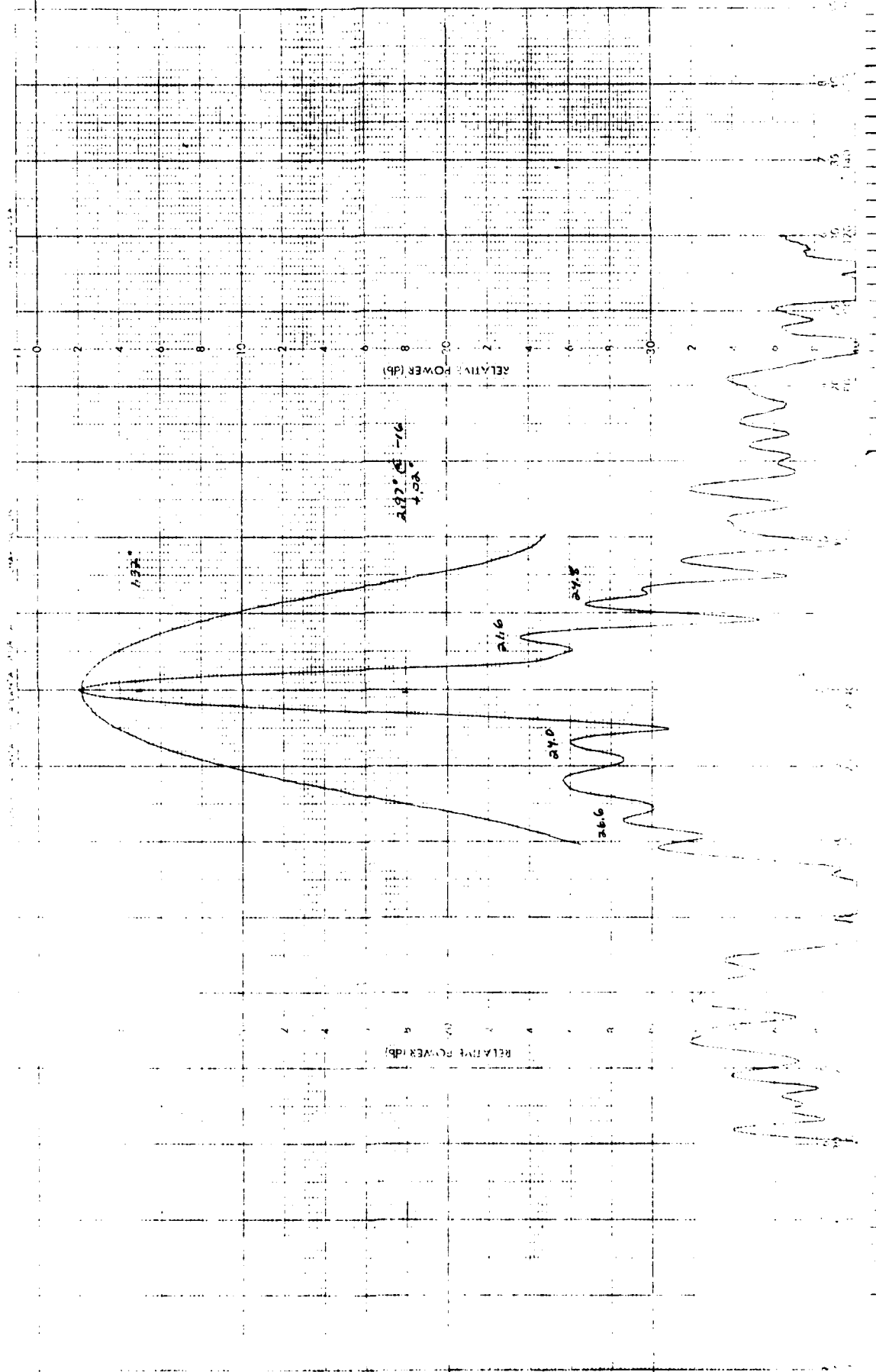


293610

DATE 25 NOV 81

ENGR MRS AF TC

1556-06
-32-454545 111D LAMP MADE ON
90.02 740.EL



The image contains two hand-drawn graphs on grid paper, both showing relative power in decibels (dB) versus angle in degrees.

Top Graph:

- Y-axis:** Labeled "RELATIVE POWER (dB)" with a scale from 0 to 10.
- X-axis:** Labeled "ANGLE (°)" with a scale from 0 to 10.
- Main Beam:** A broad peak centered at 0° with a maximum relative power of approximately 10 dB.
- Side Lobes:**
 - A small lobe at 2.0° with a relative power of about 2 dB.
 - A slightly larger lobe at 2.2° with a relative power of about 3 dB.
 - A lobe at 2.4° with a relative power of about 4 dB.
 - A lobe at 2.6° with a relative power of about 5 dB.
- Annotations:**
 - "0°" is written near the main beam peak.
 - "2.0°", "2.2°", "2.4°", and "2.6°" are written above their respective side lobes.
 - A note "3.05° (2.0° - 1.0°)" is written near the 2.0° lobe.

Bottom Graph:

- Y-axis:** Labeled "RELATIVE POWER (dB)" with a scale from 0 to 10.
- X-axis:** Labeled "ANGLE (°)" with a scale from 0 to 10.
- Main Beam:** A broad peak centered at 0° with a maximum relative power of approximately 10 dB.
- Side Lobes:**
 - A small lobe at 2.0° with a relative power of about 2 dB.
 - A lobe at 2.2° with a relative power of about 3 dB.
 - A lobe at 2.4° with a relative power of about 4 dB.
- Annotations:**
 - "0°" is written near the main beam peak.
 - "2.0°", "2.2°", and "2.4°" are written above their respective side lobes.

293634

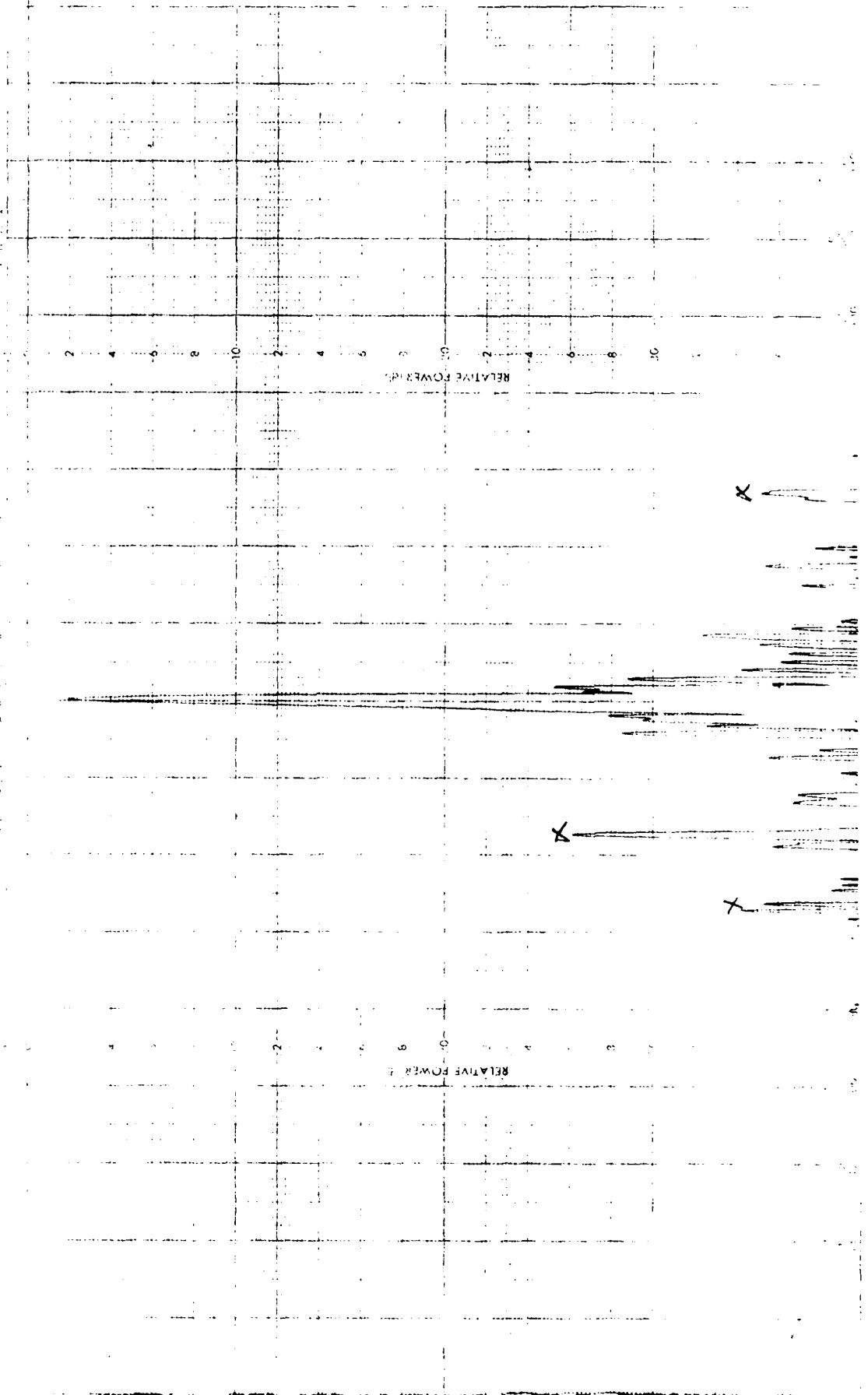
DATE 25 AUG 51

ENGR Mes RF TC

188C-00

REMARKS 1110 BOUND RADONE ON

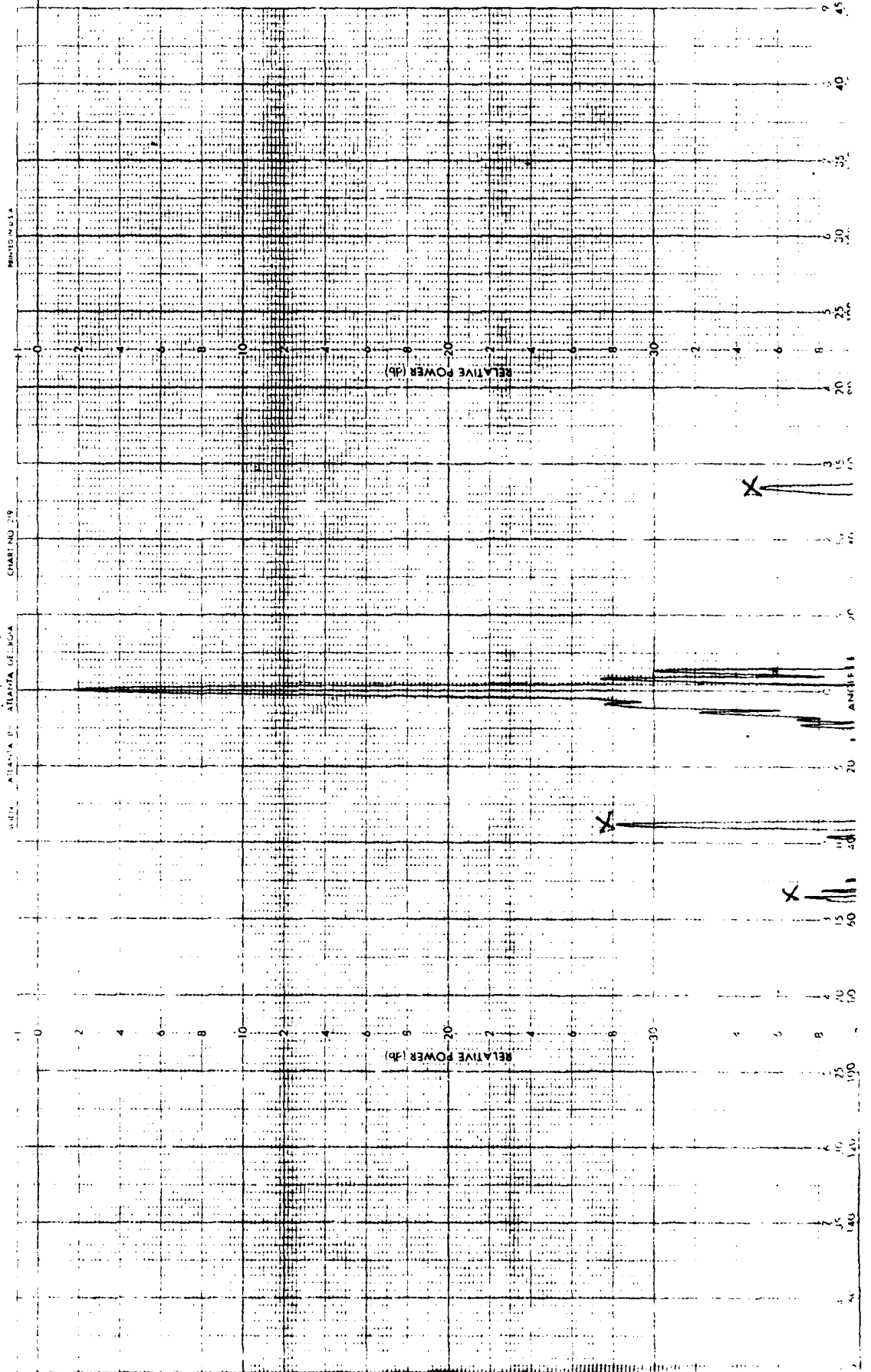
2600 HON AT C-FL JNCIT

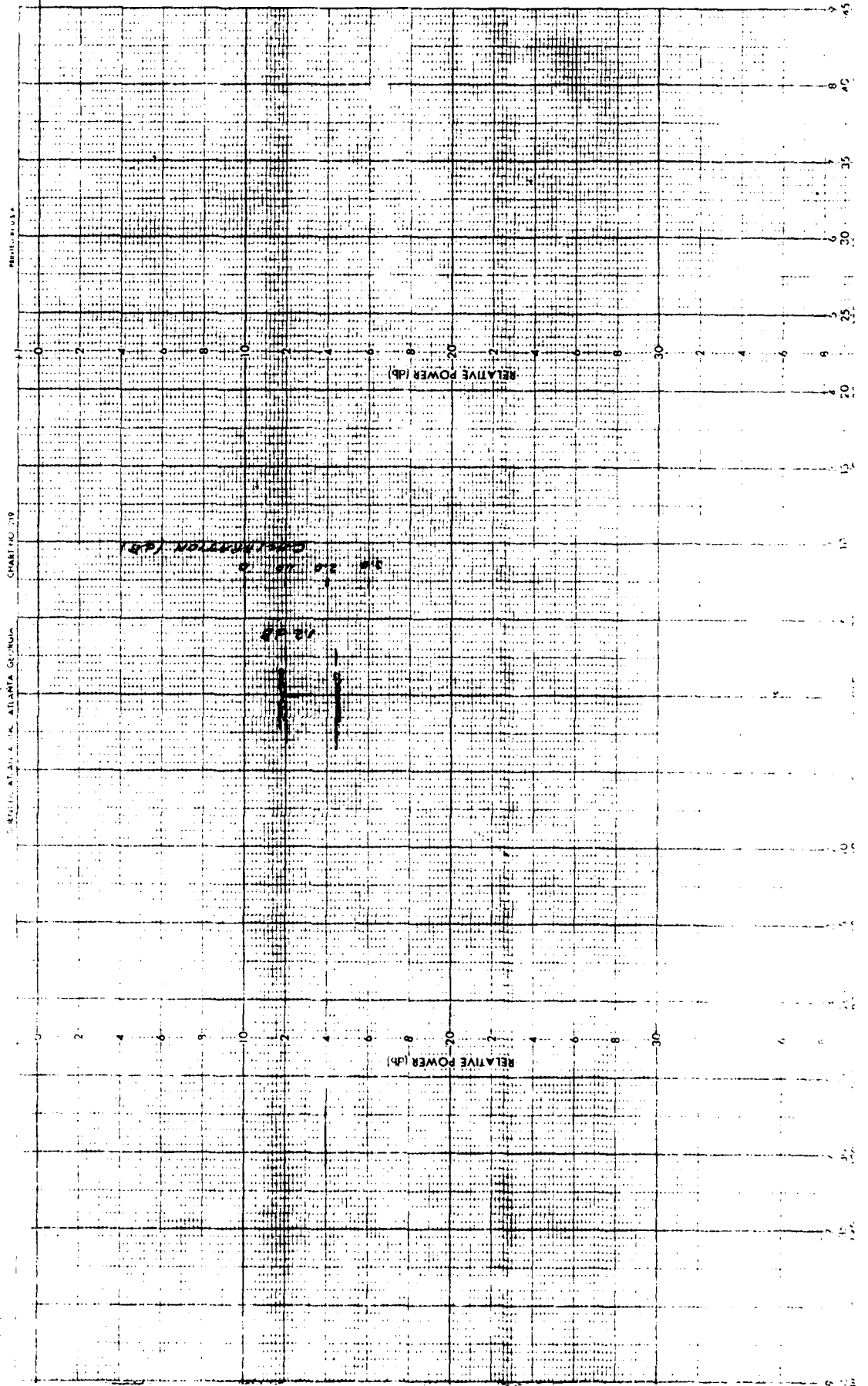


293628

ENGR 11-5 RF TC DATE 25 AUG 81

PROJECT 1986-C6
 REMARKS 111D ENDP NO RNDOME
 360° RUN AT 0° EL ANGLE





298631

DATE 25 AUG 81

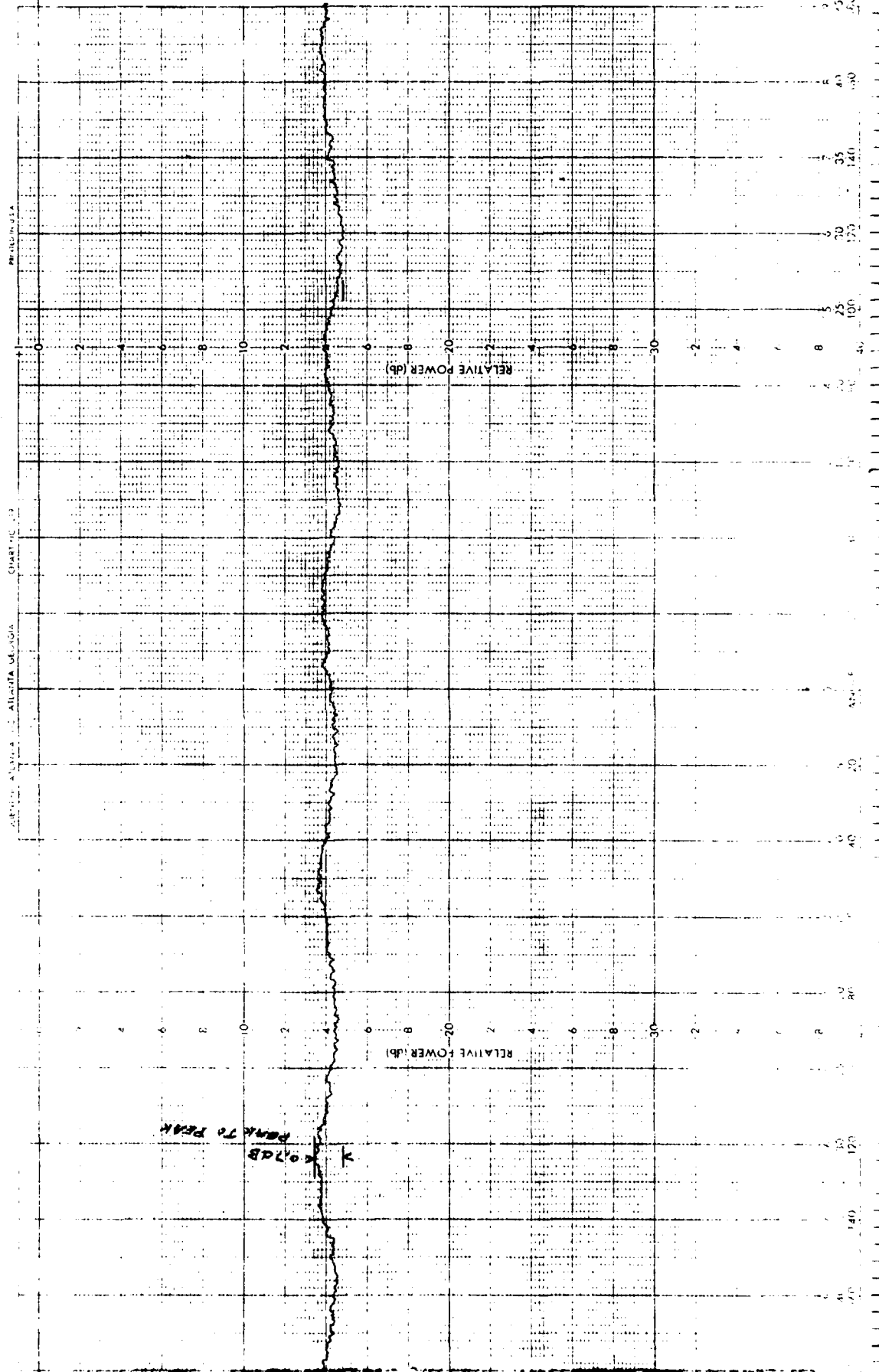
ENGR APPS RF TC

REMARKS

PROJECT 1986-06

REMARKS MID BAND 360 LOSS

ADJUST ON

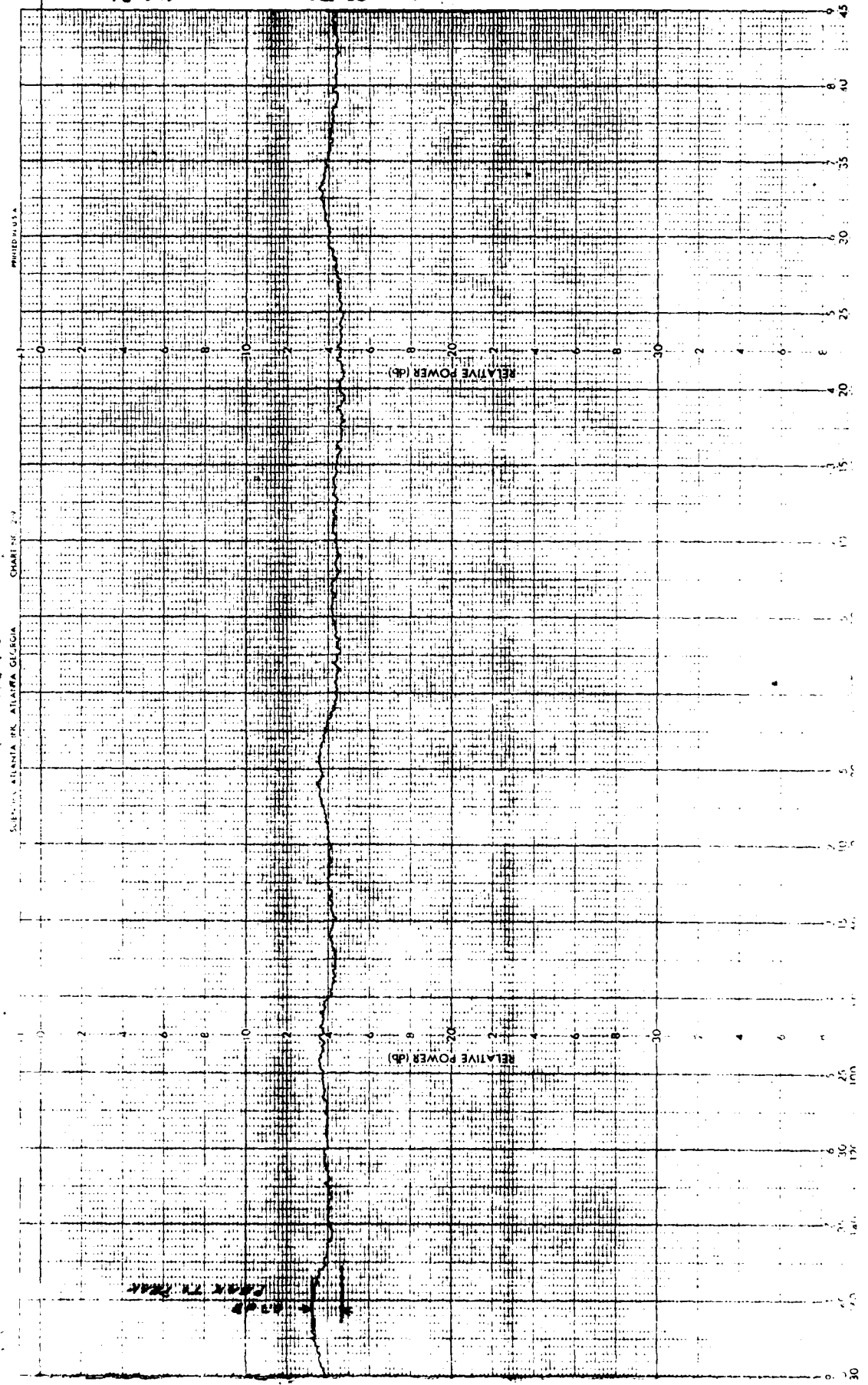


293633

DATE 25 AUG 81

ENGR APPS RF TC

PROJECT 1896-06
REMARKS: MILD BOND 360° LOSS
-04 - MEASUREMENT RUN AT 30° EL ANGLE



PRINTED IN U.S.A.
CHARACTER 279
SUBJECT: ATLANTA RF ATLANTA GLESCIA

283632

DATE 25 AUG 81

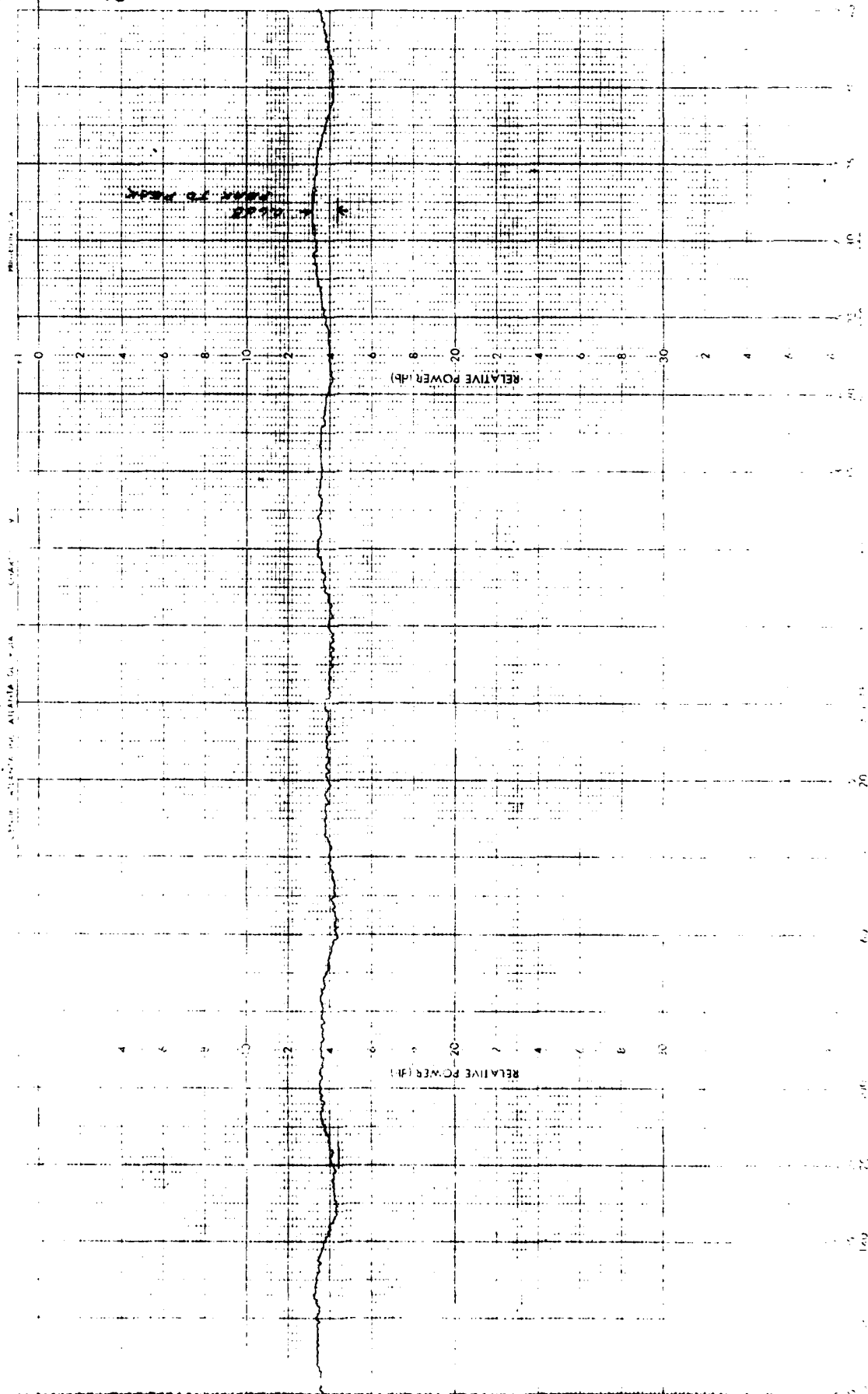
ENGR MTS RF TC

PROJECT 1986-06

-14- REMARKS: 1119 BAND 360 LOSS

UNIFORMITY RUN AT +20° EL ANGLE

INDICATE ON



293649

DATE 25 AUG 81

ENGR APPS RF TC

PROJECT 1856-06
-24- REMARKS MILD BAND 360° BENEIGNANT
RUN AT C° EL ANGLE

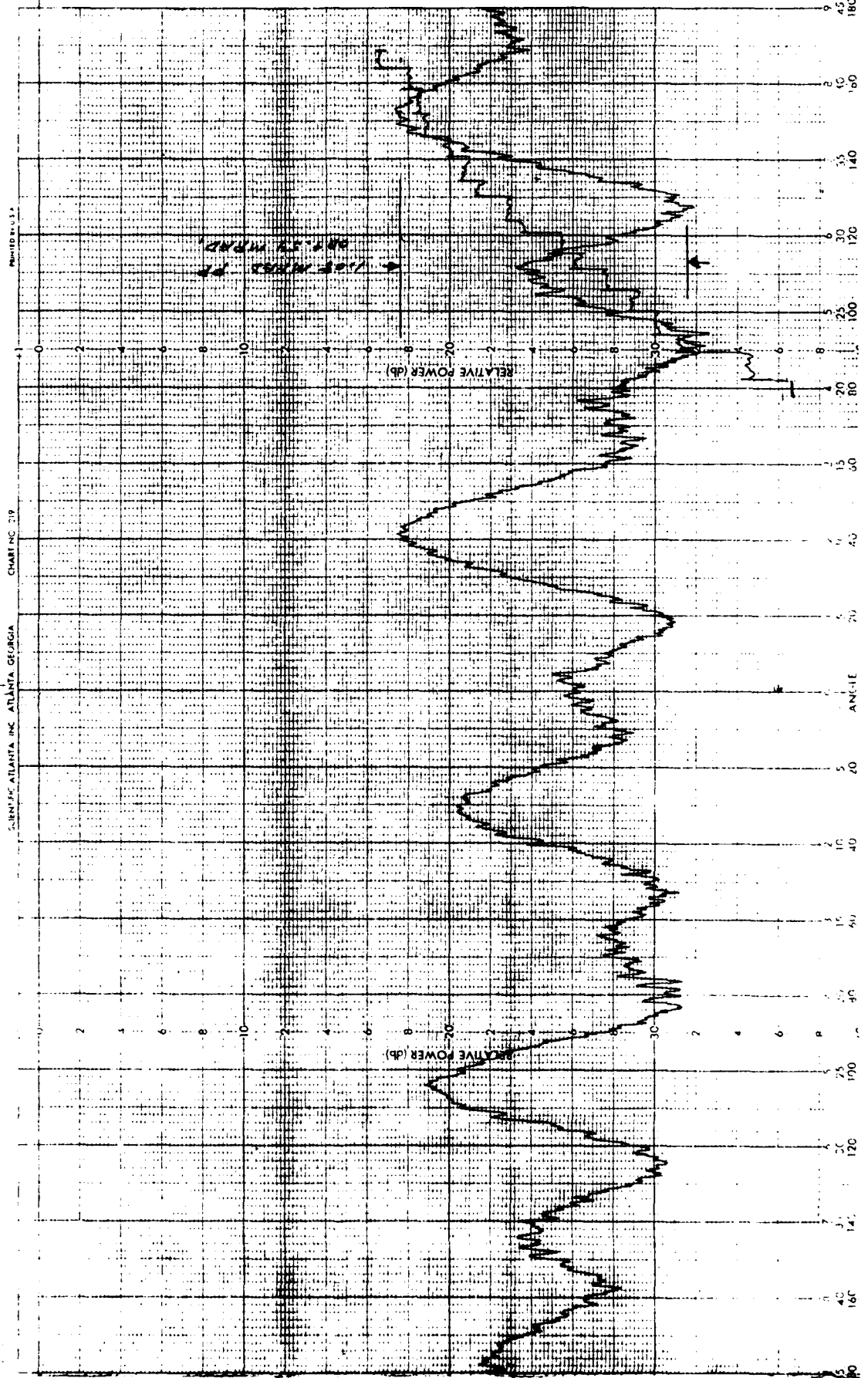


CHART NO. 119

CHART NO. 119

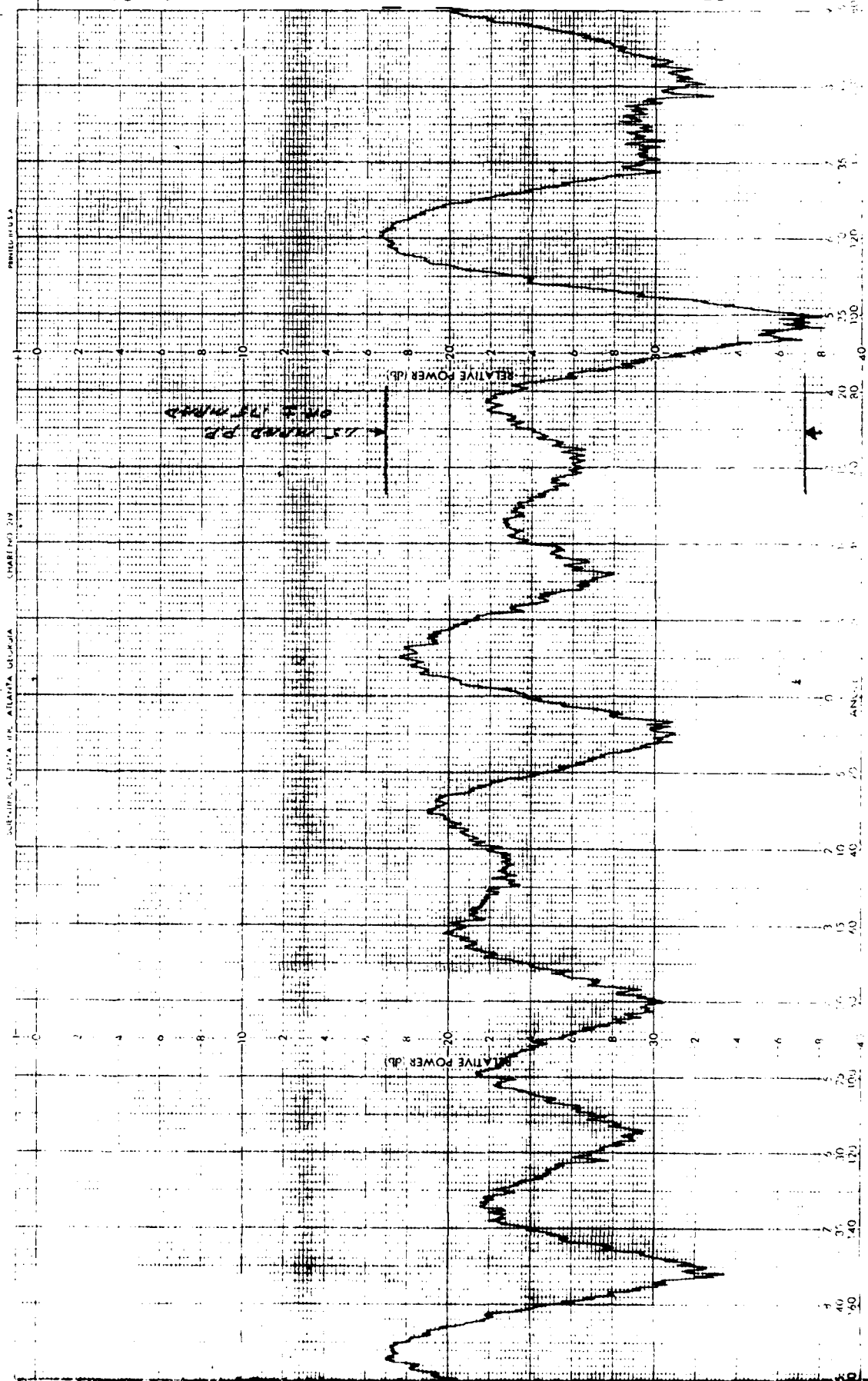
SCIENTIFIC ATLANTA INC ATLANTA GEORGIA

283651

DATE 25 AUG 81

ENGR APPS RF TC

PROJECT 1586-06
REMARKS 1110 BAND 360° BORESIGHT
RUN AT -20° EL ANGLE



213650

DATE 25 AUG 81

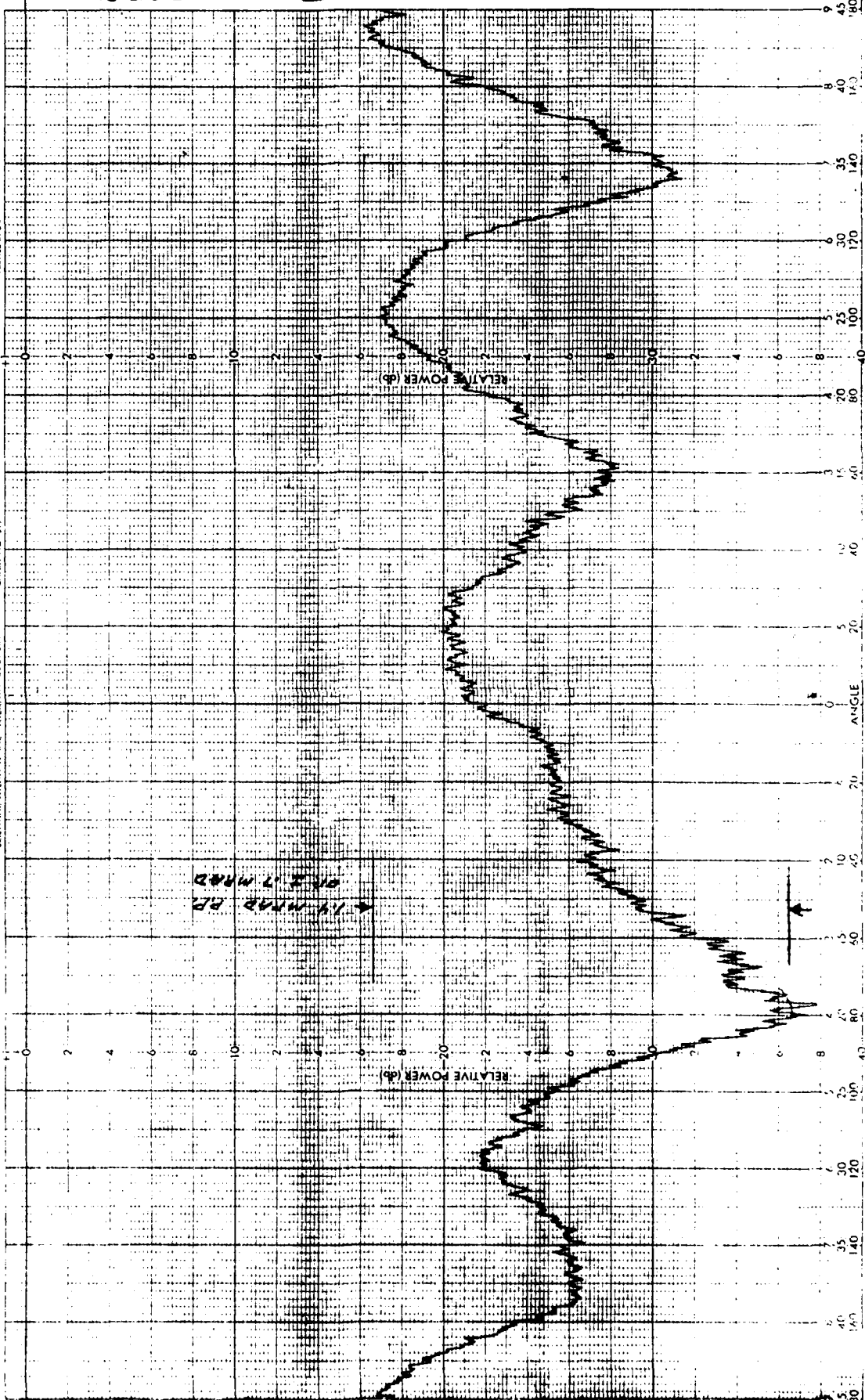
ENGR AMS RF 72

PROJECT 1886-06
REMARKS MID BAND 360° BORESIGHT
RUN AT 720° EL ANGLE

PRINTED IN USA

CHART NO 219

SCIENTIFIC ATLANTA INC ATLANTA GEORGIA



21 3625

DATE 24 JUL 81

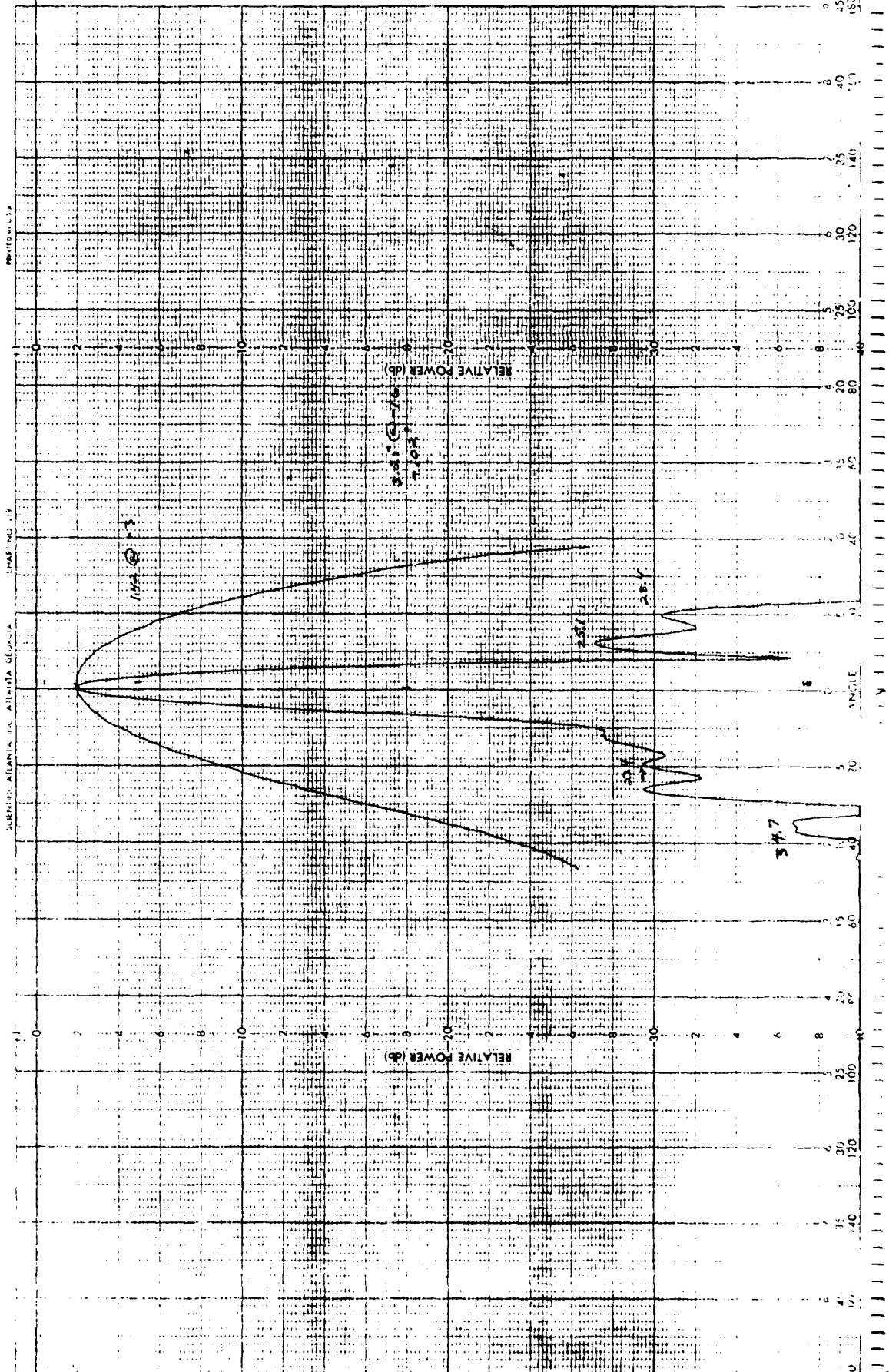
ENGR 445 7c

NO RADOME

75,0 24.0

PROJECT / 44-96

6550



294009

DATE 24 AUG 51

ENGR APP NT TC

REMARKS HIGH BAND

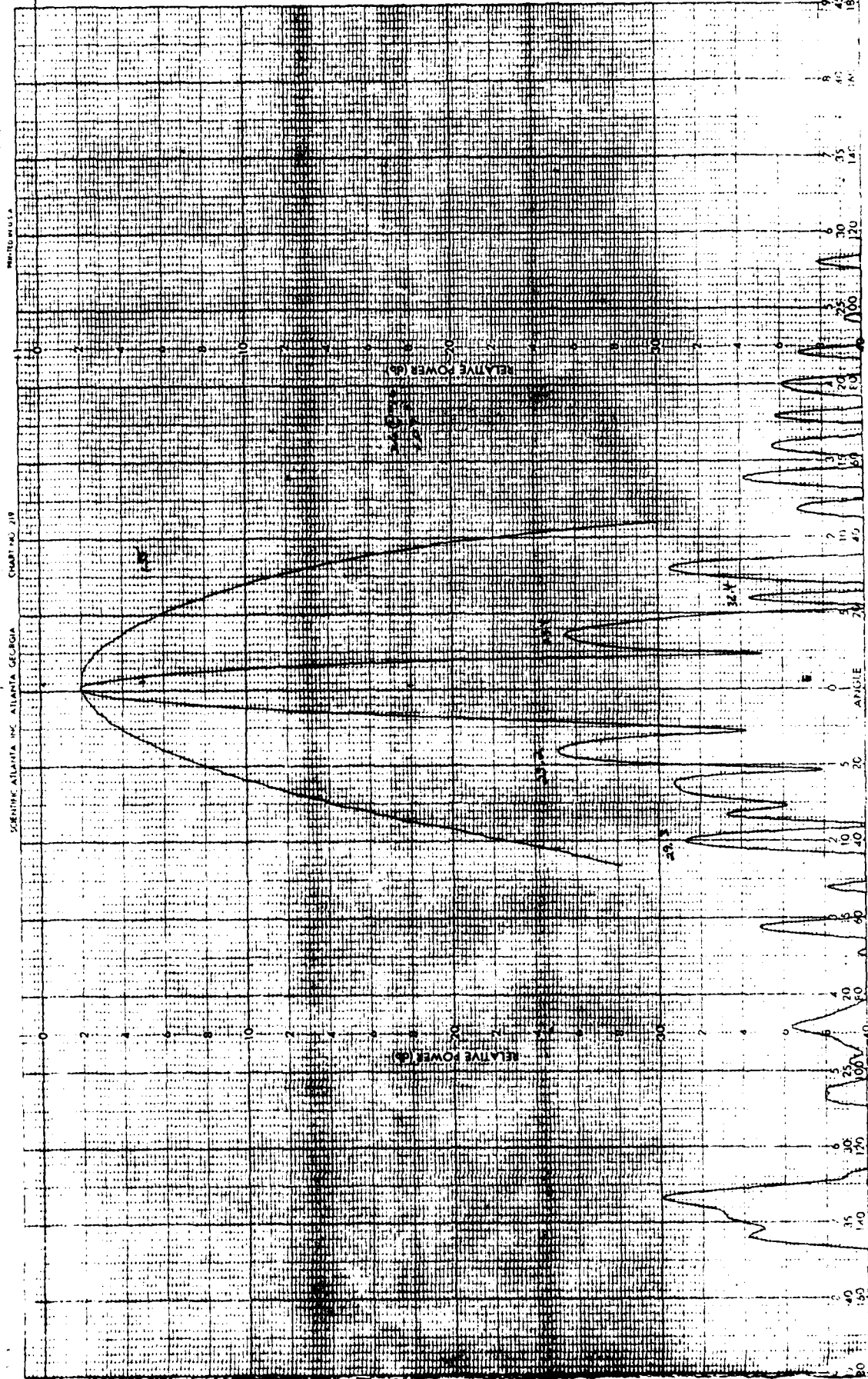
0.72 0.71

PROJECT 1886-06

WHITE MOUNTAIN

CHART NO 218

SCIENTIFIC ATLANTA INC ATLANTA GEORGIA



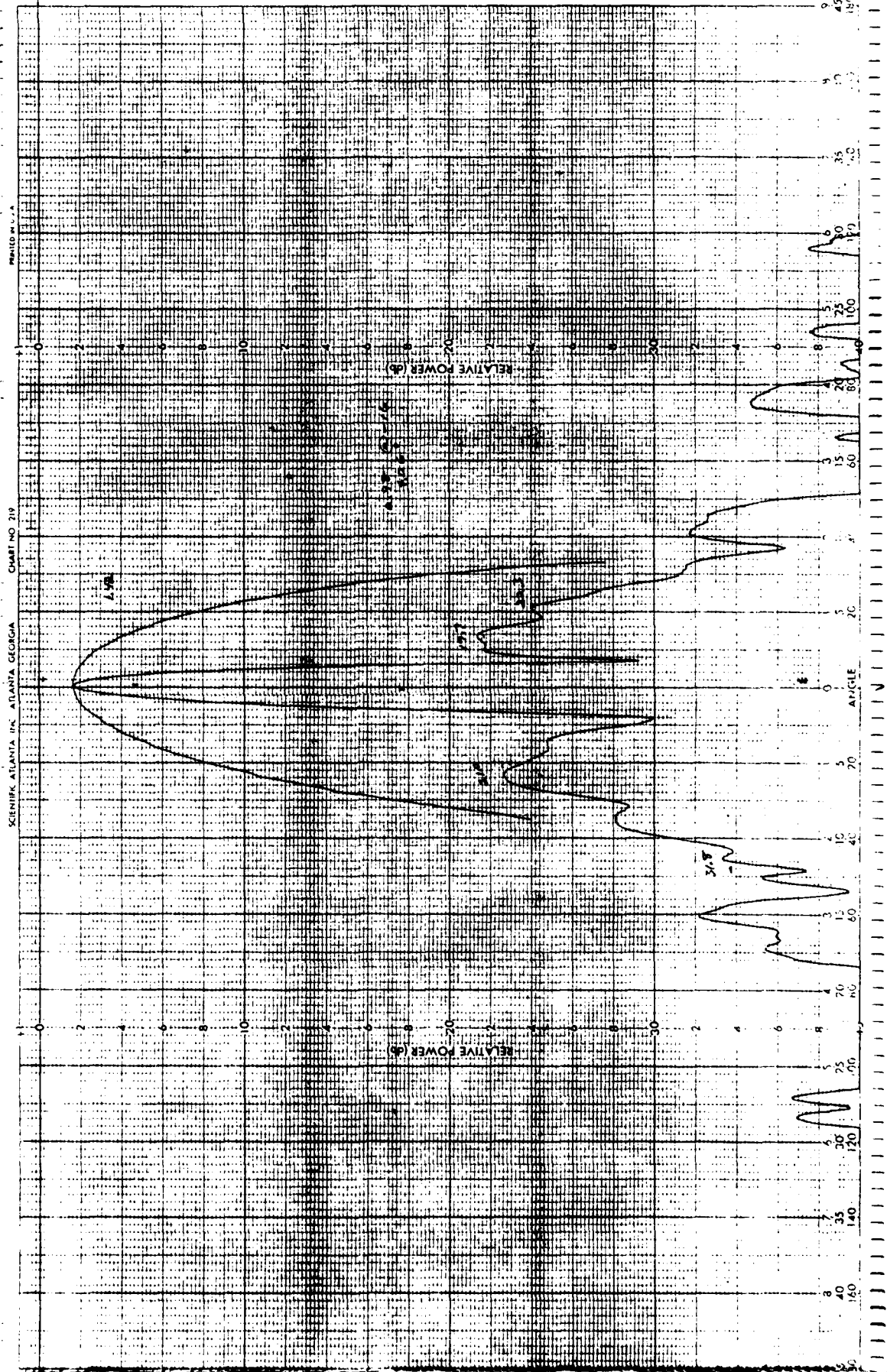
294010

DATE 24 AUG 51

ENGR APPS RF TC

PROJECT 186-06
-44- REMARKS HIGH BAND RADOMON

90.42 C.F.L.

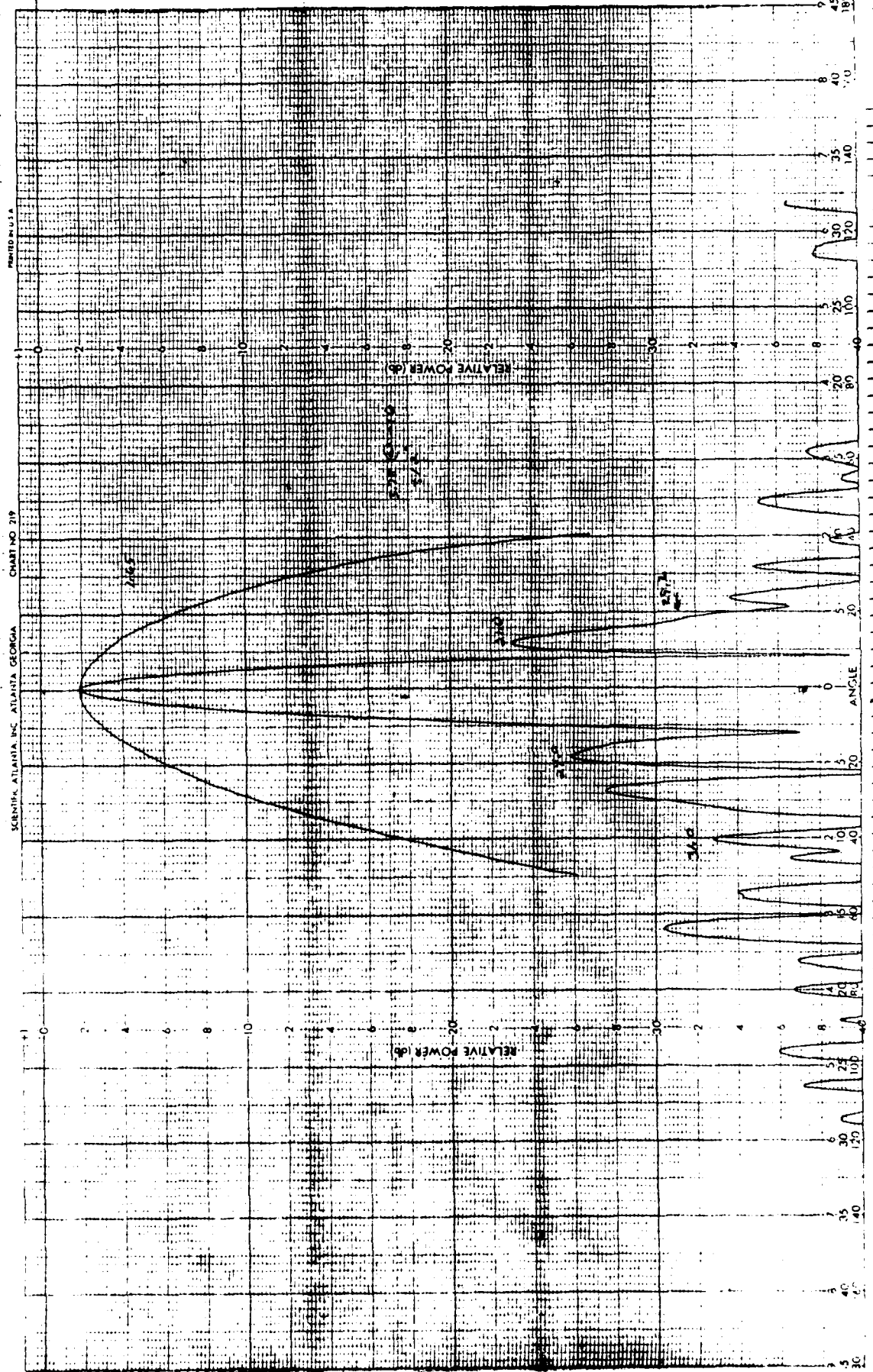


SCIENTIFIC ATLANTA, INC. ATLANTA, GEORGIA

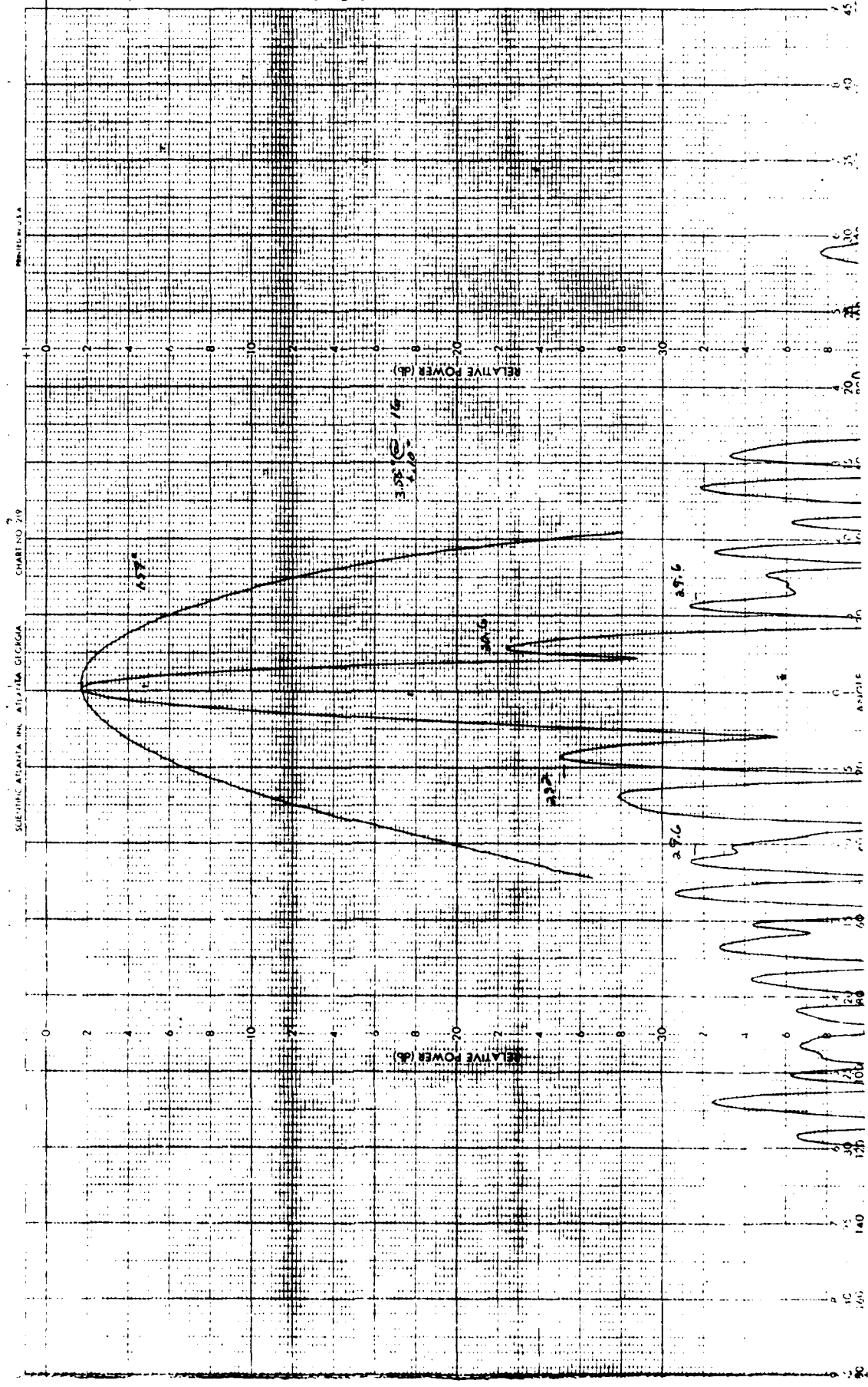
CHART NO. 210

PRINTED AT S.A.

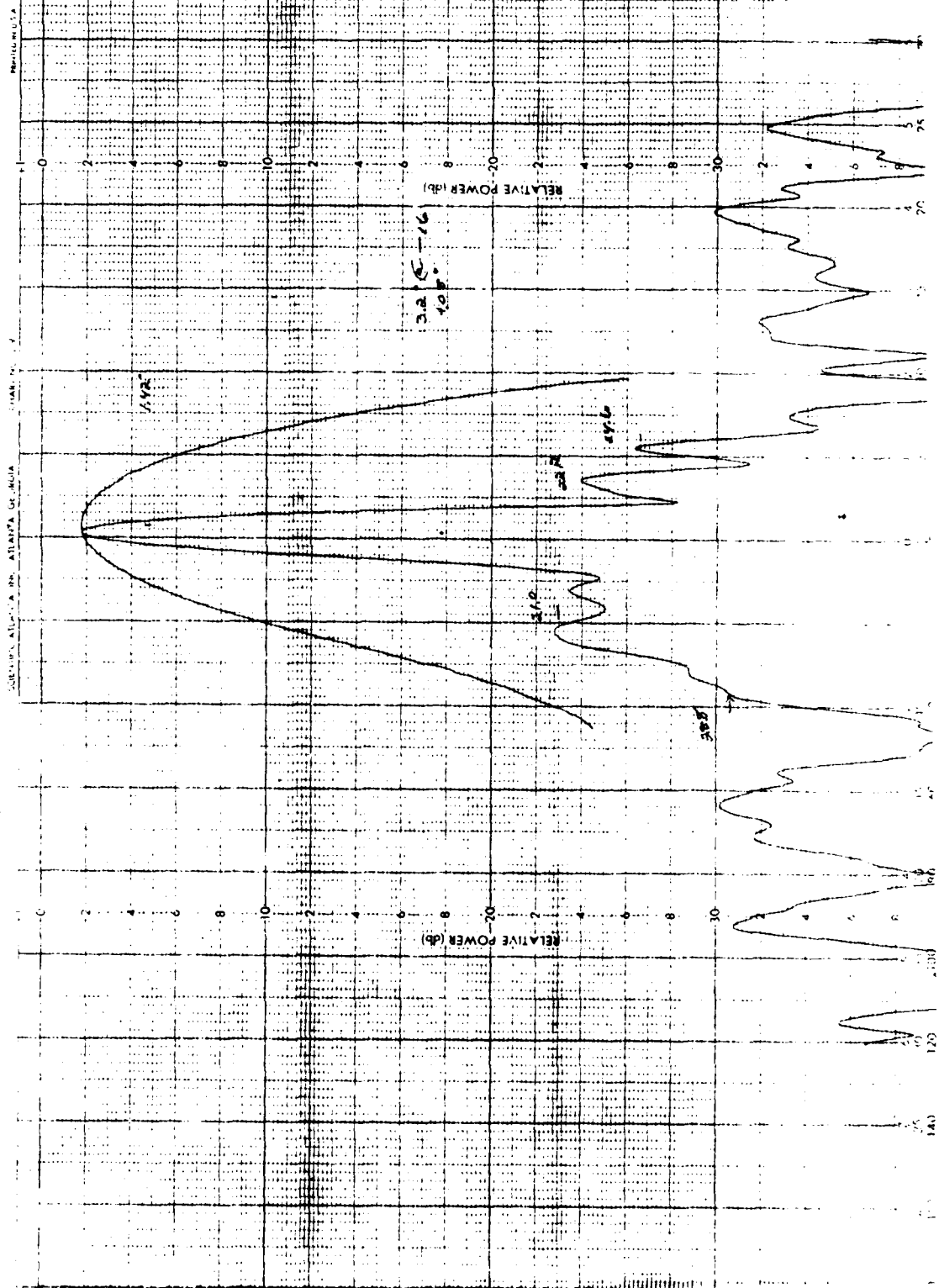
48-

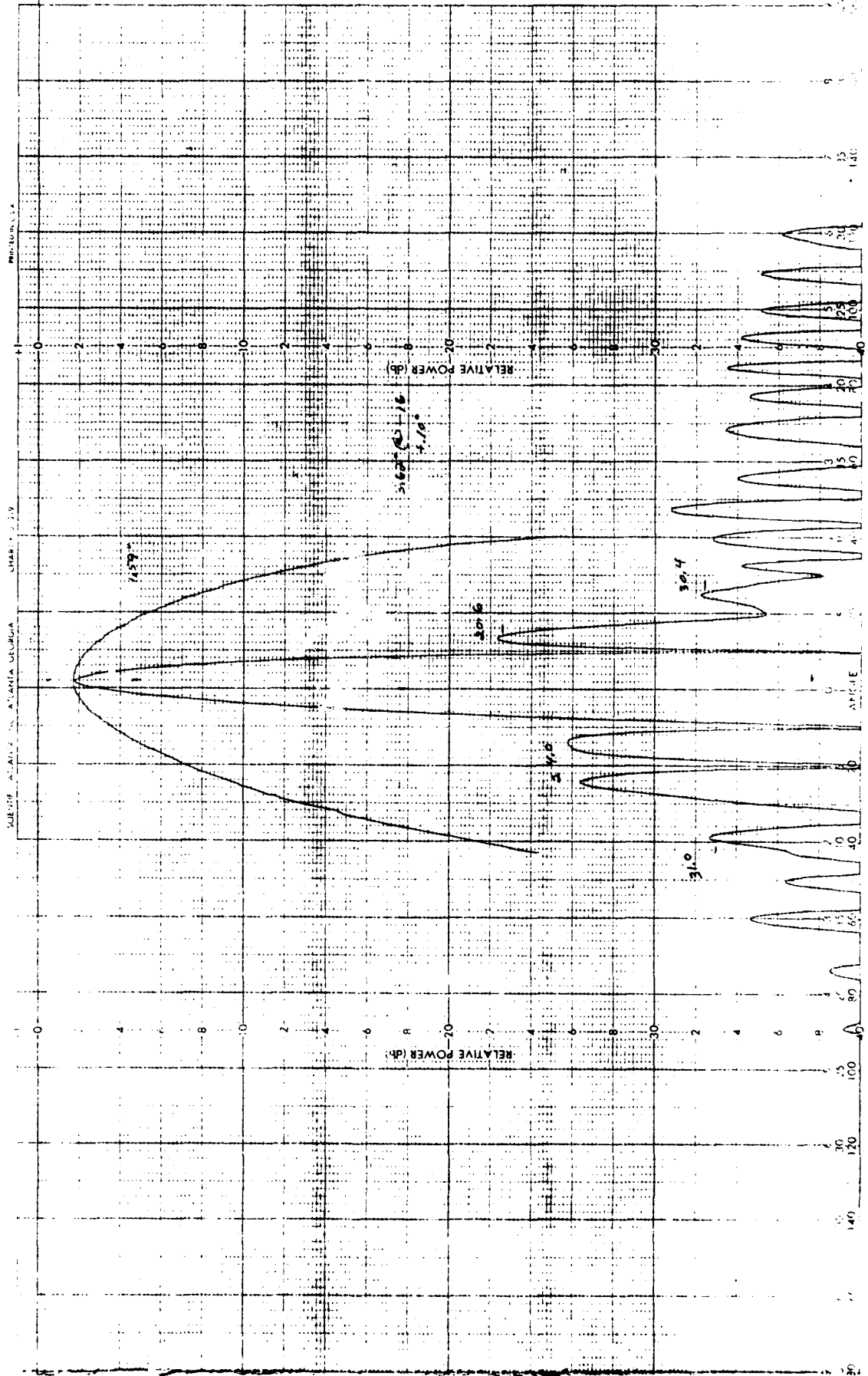


PROJECT 1886-06
 -25- REMARKS HIGH BAND RADOME ON
 0° 02' - 20° EL
 ENOA TFS RF TC DATE 27 AUG 51
 293616

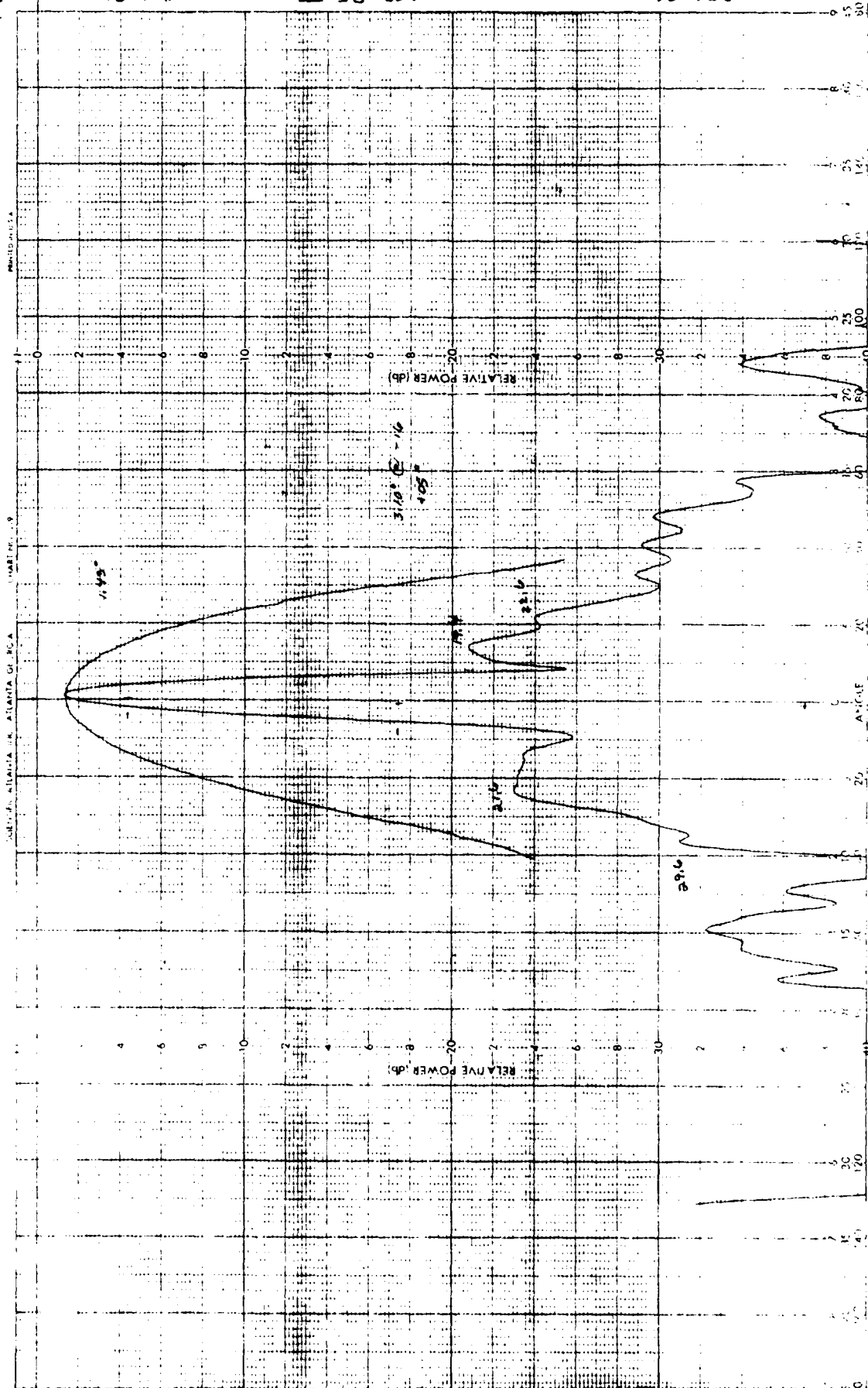


15-REMARKS





-55-REMARKS



214013

DATE 24 AUG 61

ENGR APPS RF TC

REMARKS ON

PROJECT 1970-06

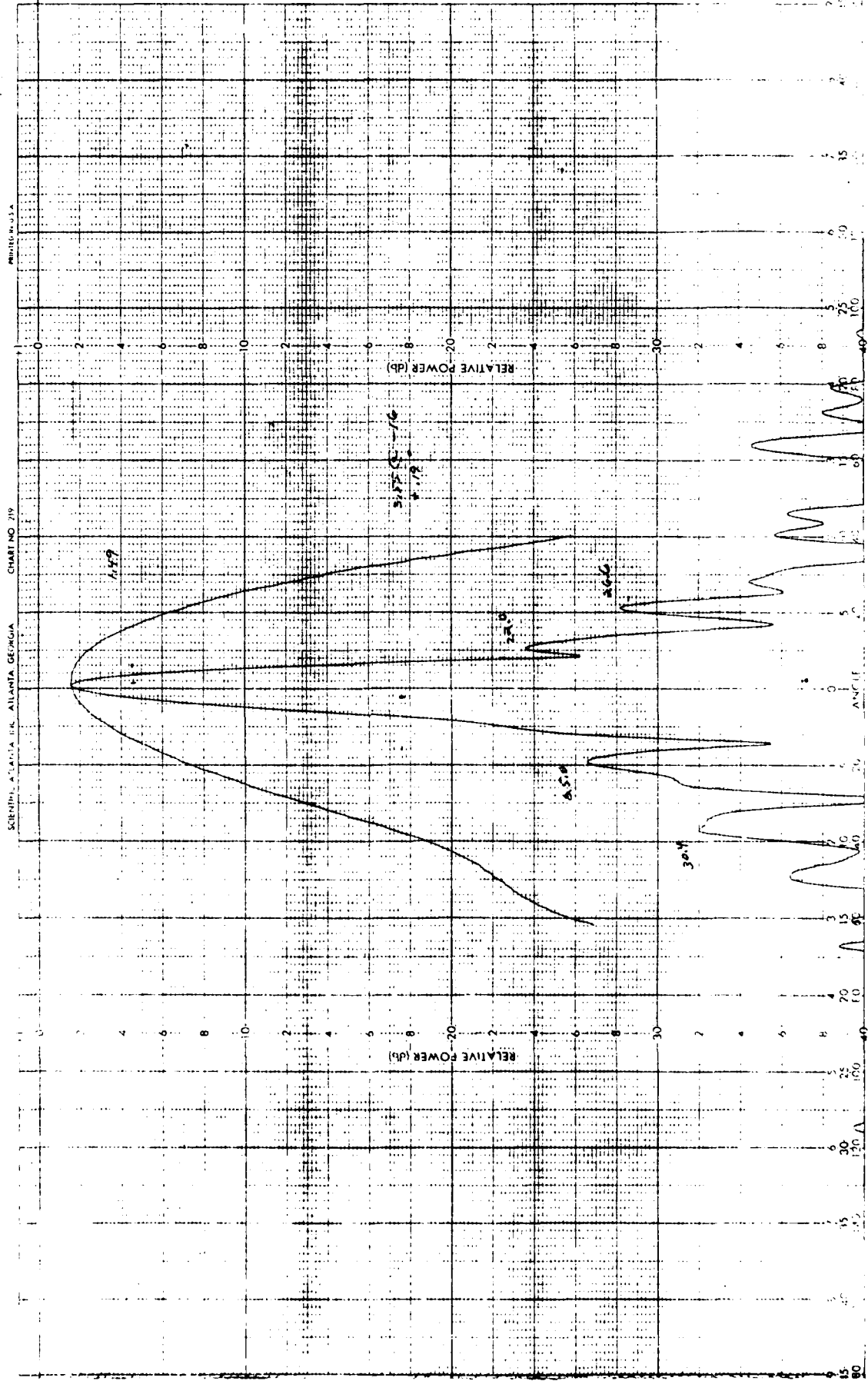
0.72 +30.0 EL

-45-REMARKS 14127 DNRD RHPDINE ON

PHOTO NO. 134

CHART NO. 719

SCHENK, ATLANTA, ILL. ATLANTA, GEORGIA



284014

DATE 24 DEC 81

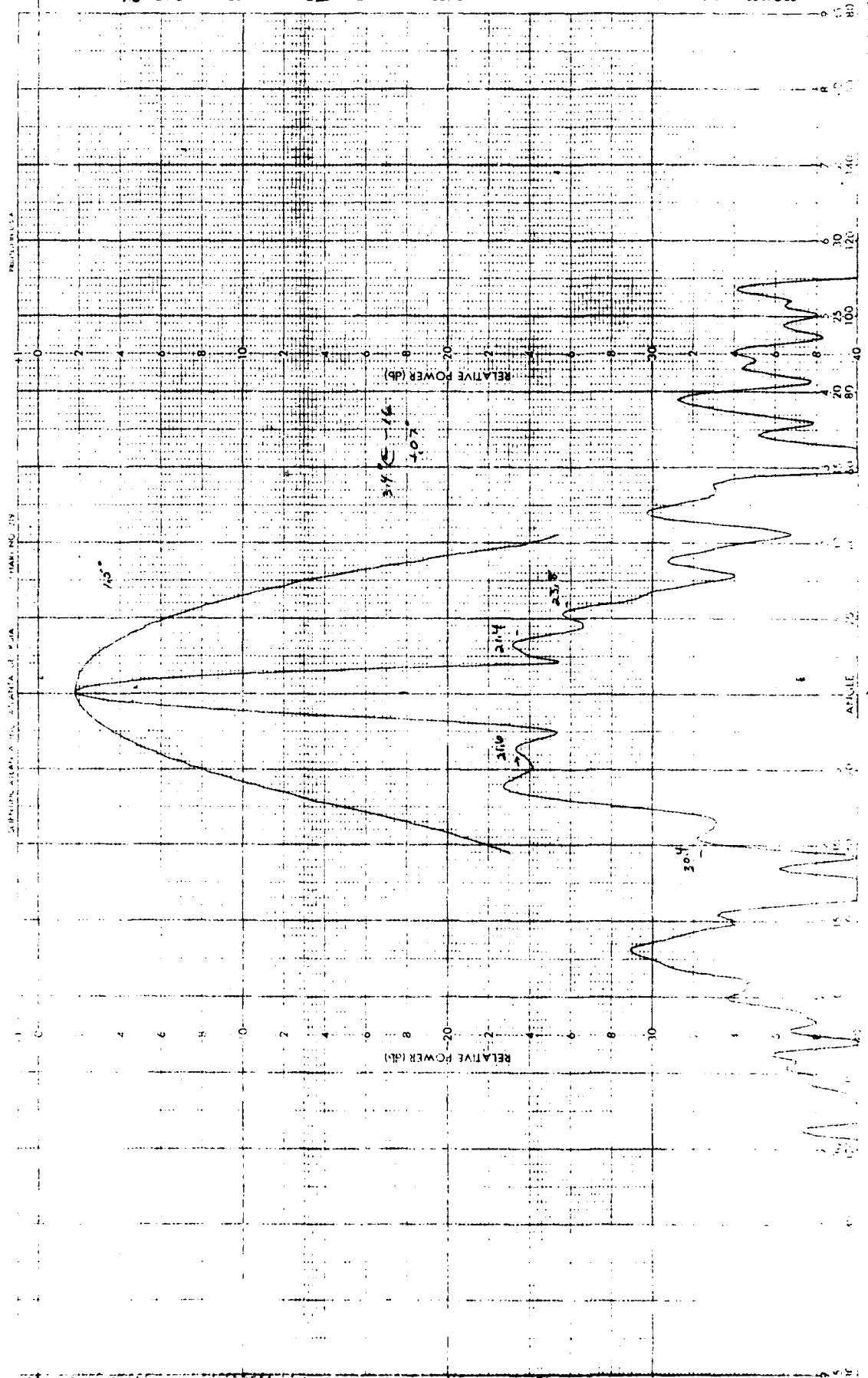
ENGR 475 RF TC

RAIDING CN

90.142 +20.0L

PROJECT 1886-06

-5.5-REMARKS HIGH BAND

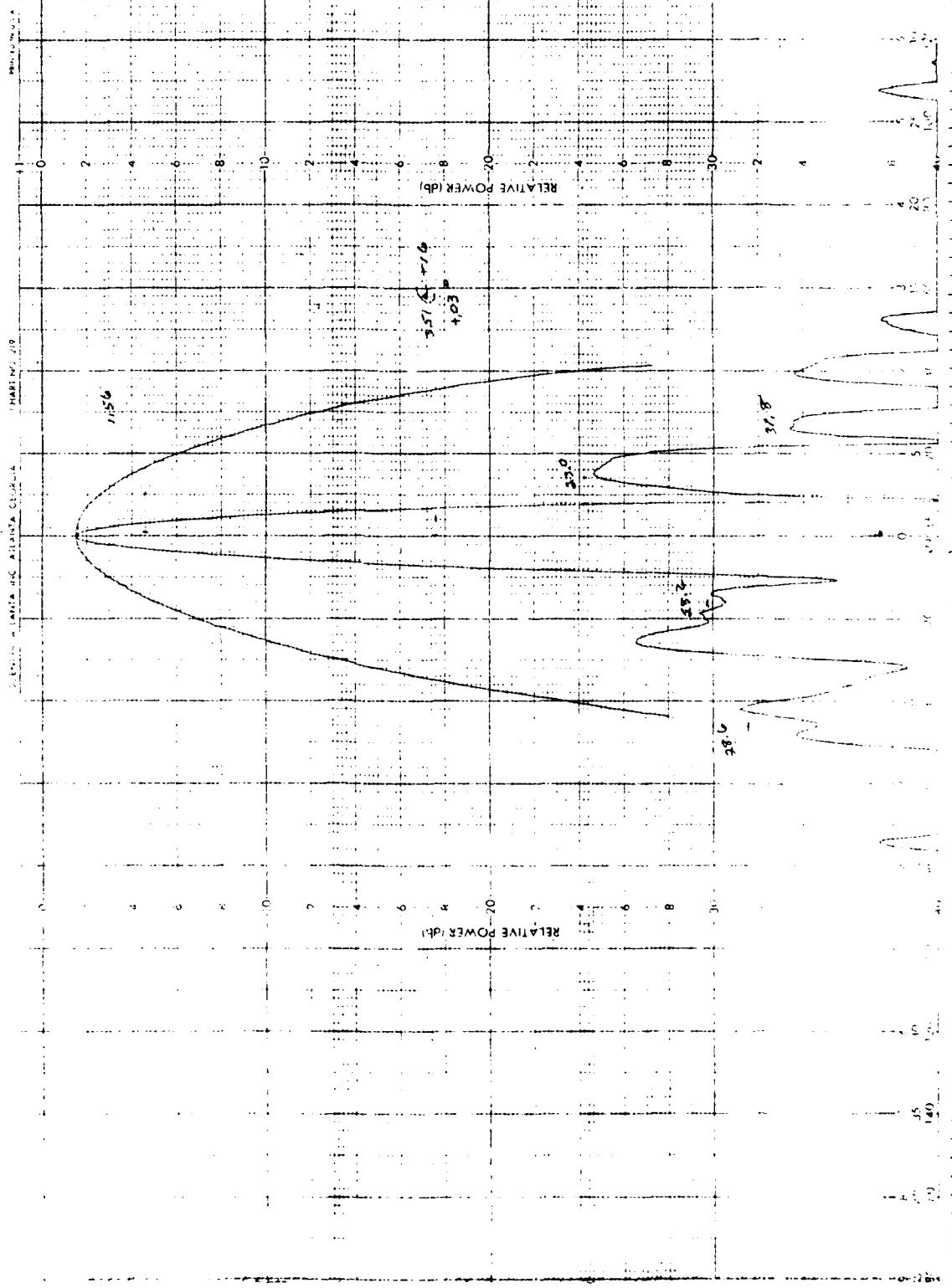


254015

DATE 24 AUG 81

ENGR APPS RF TC

PROJECT 1-86-66
REMARKS HIGH BAND RADOME ON
190° AZ +30° EL

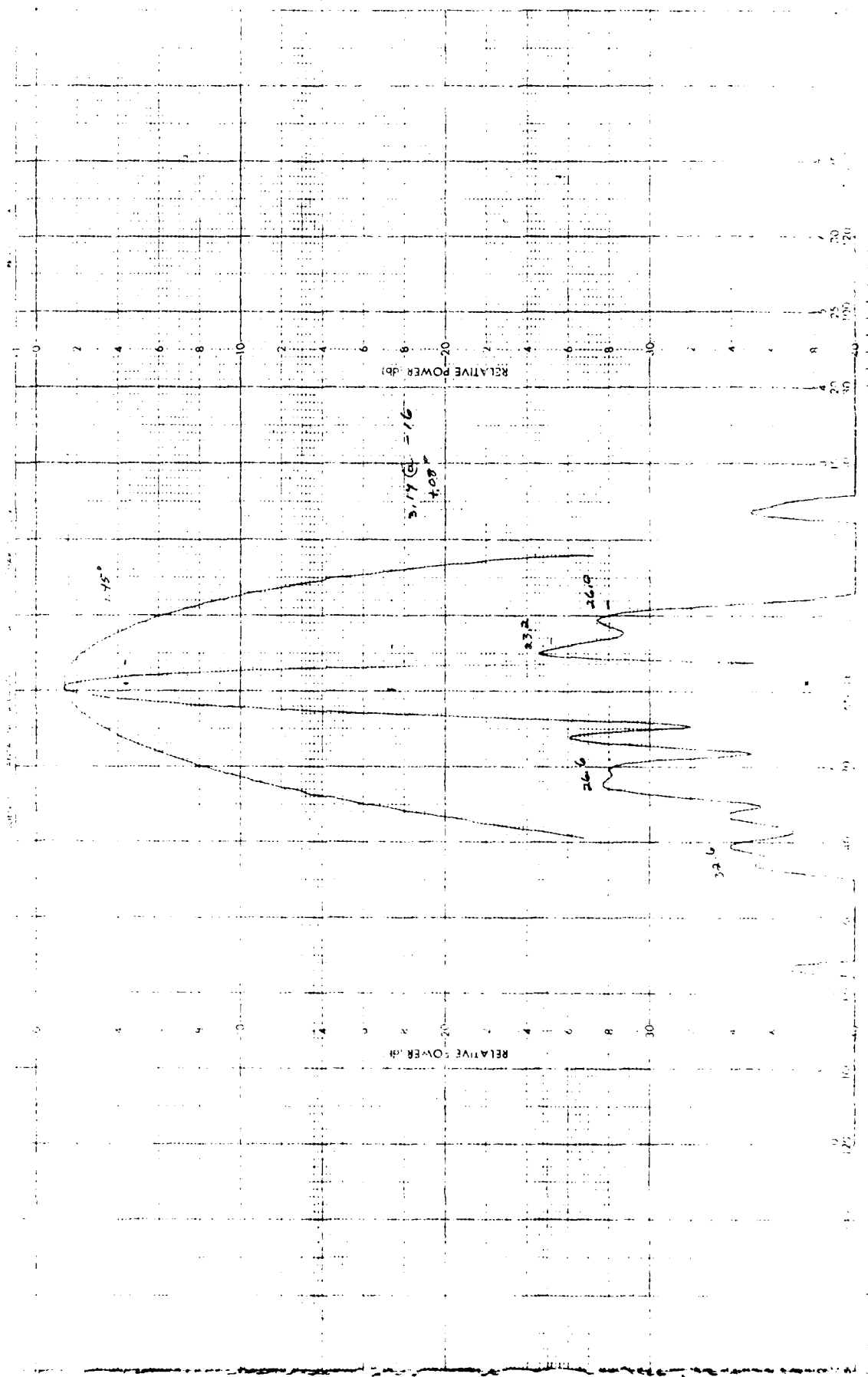


294016

DATE 24 MAR 57

ENGR 4125 RF TC

PROJECT 1956-04
-2.5-10 MARKS HIGH BAND RAJINE CN
5000 Hz +30.0 EL

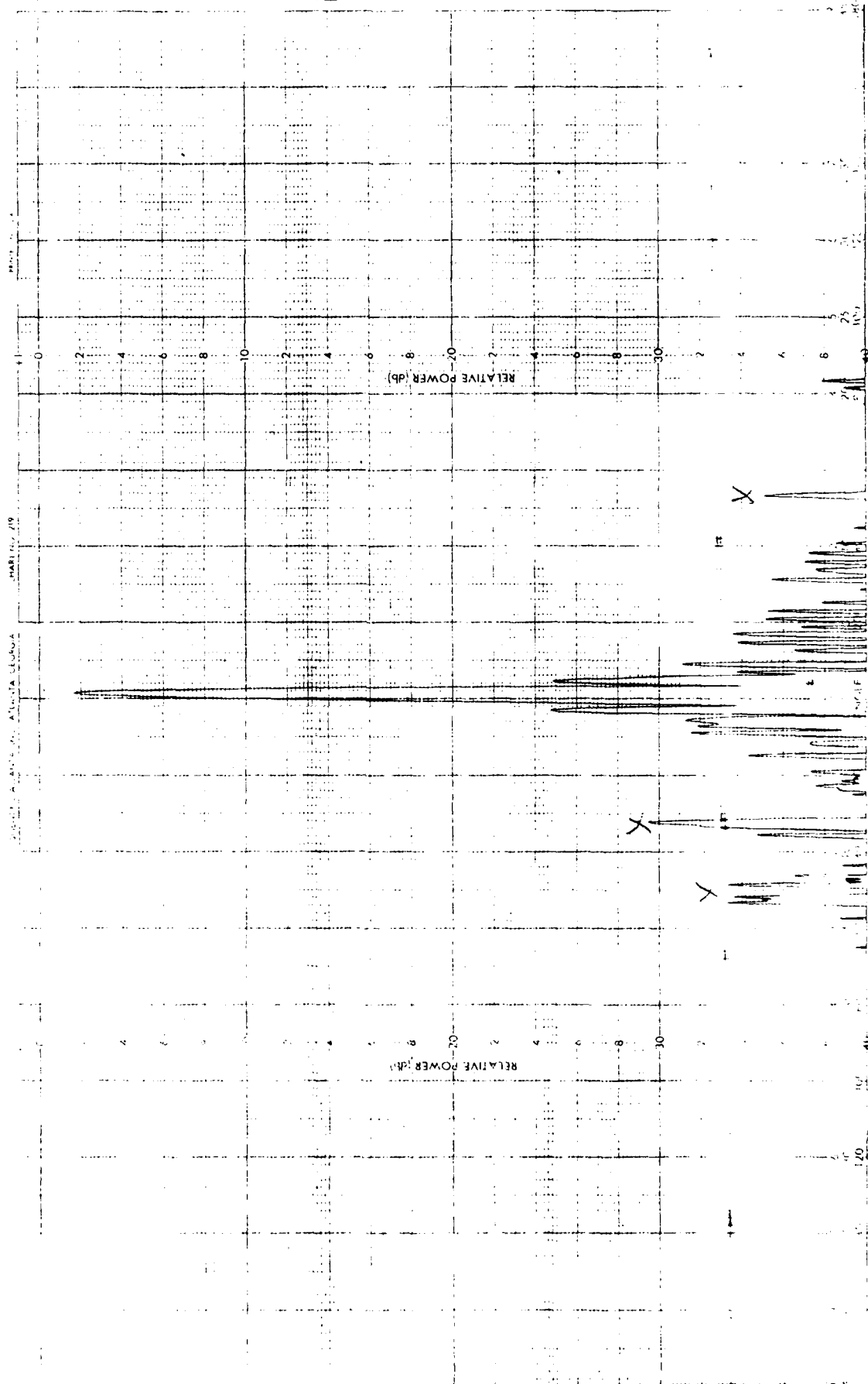


293620

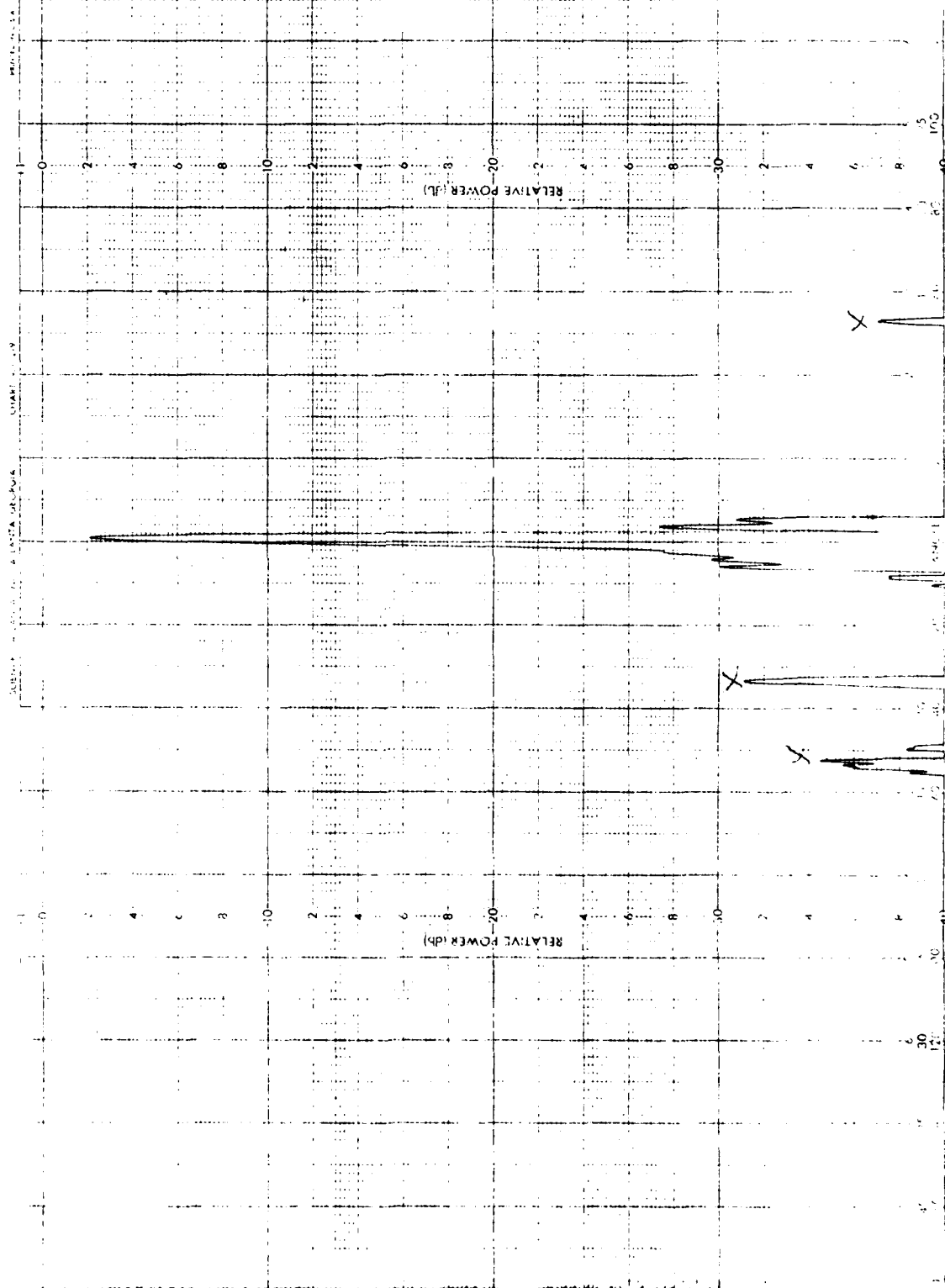
DATE 24 JUL 51

ENGR WVS RF TC

PROJECT 1842-66
-25- REMARKS HIGH BAND RADAR CN
360° MIN AT C-EL ANGLE



360° HLY AT C' LE ANGLE



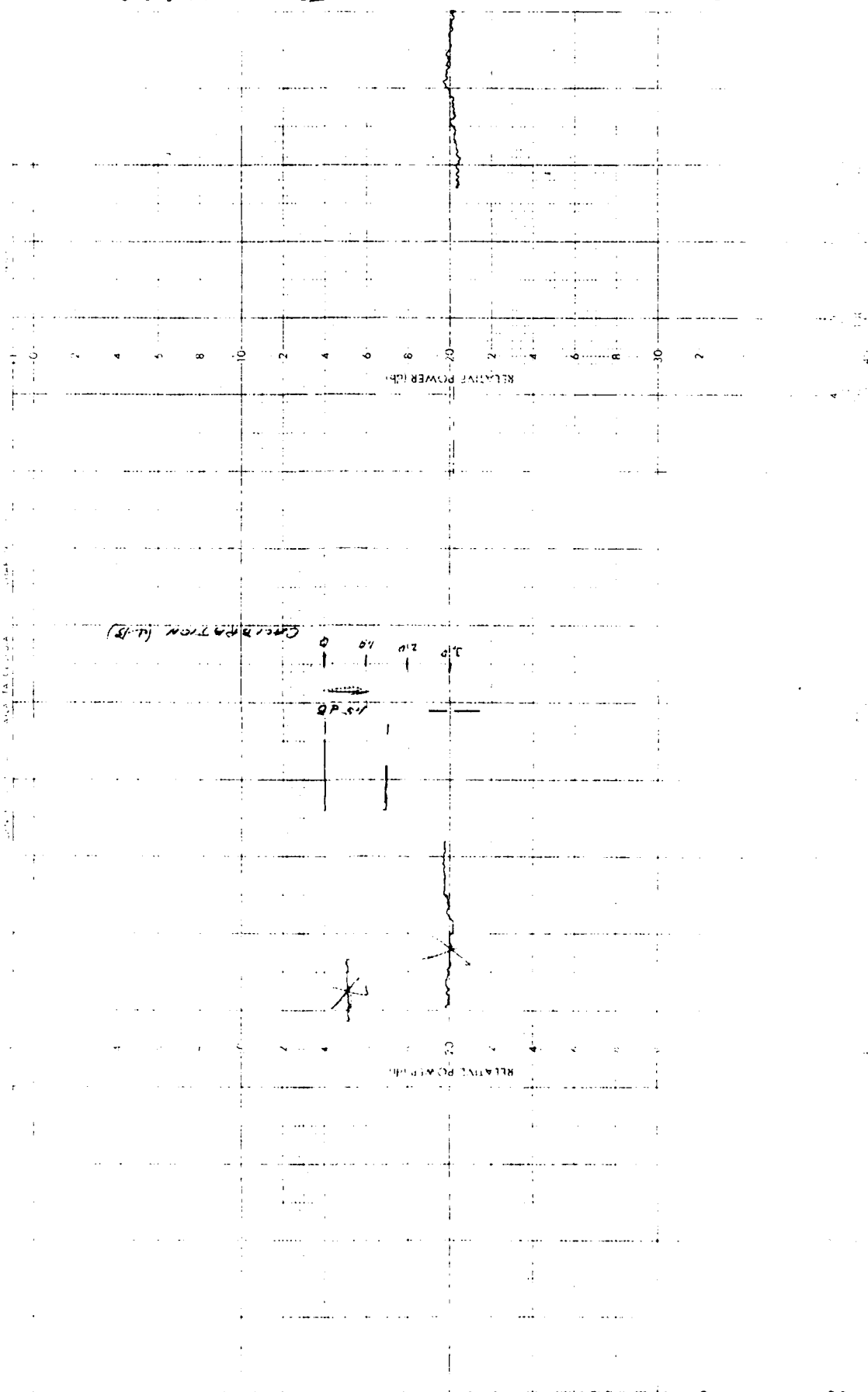
213624

DATE 11 AUG 51

ENCR APS 155 TC

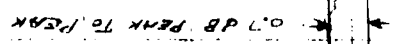
424-26 H 24 MIND TX LOSS

1094-26

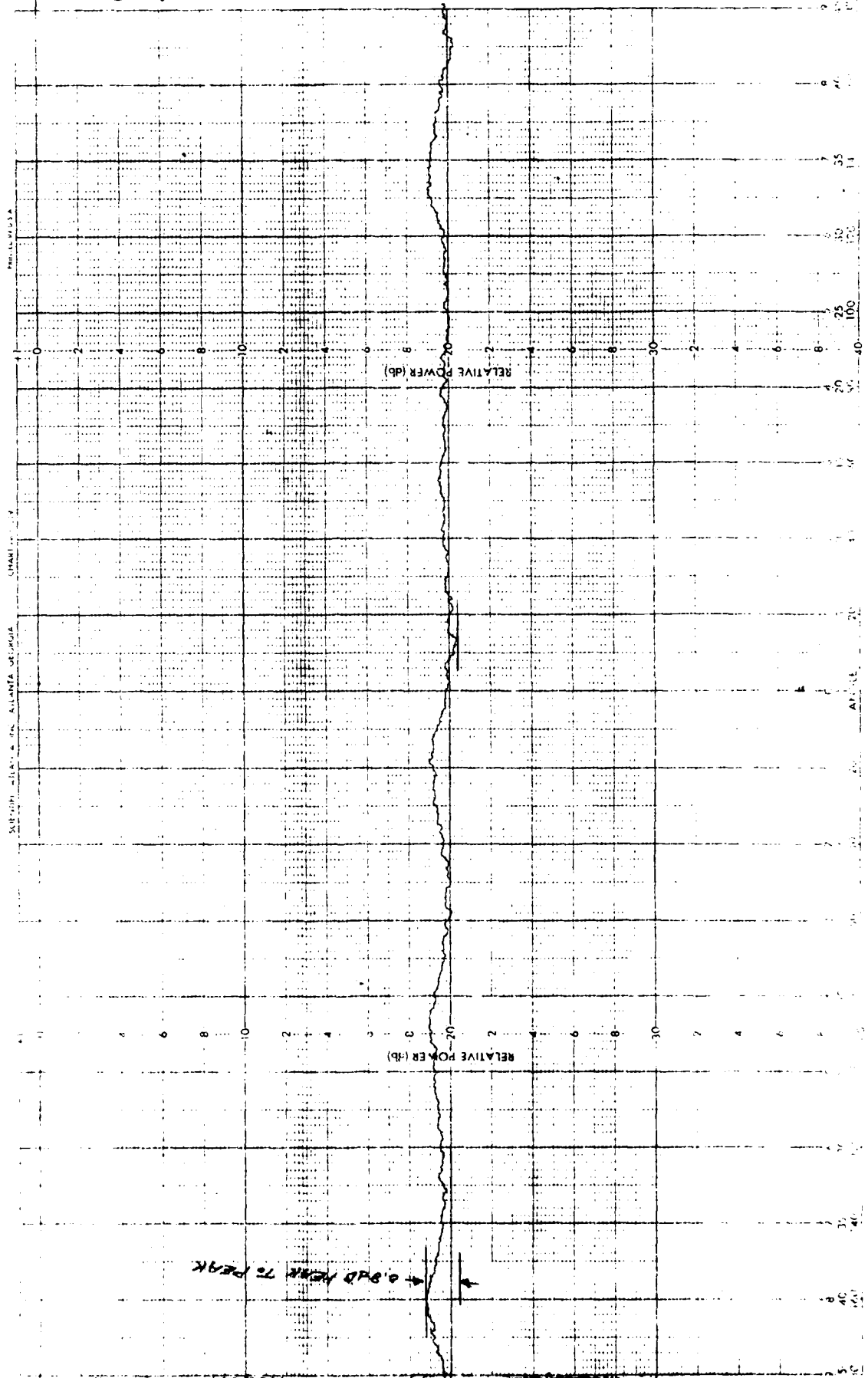


129810

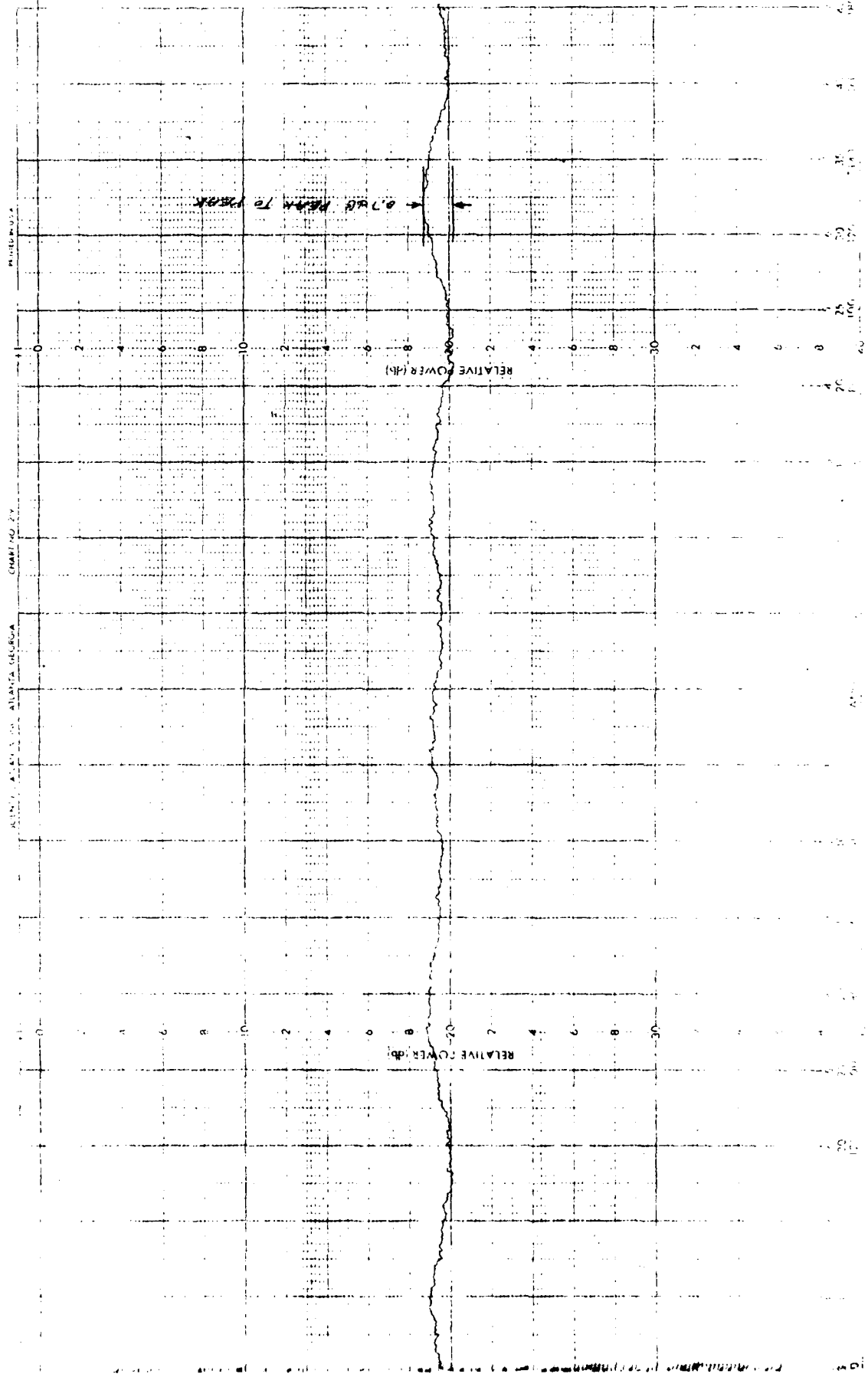
100 24 Ave St

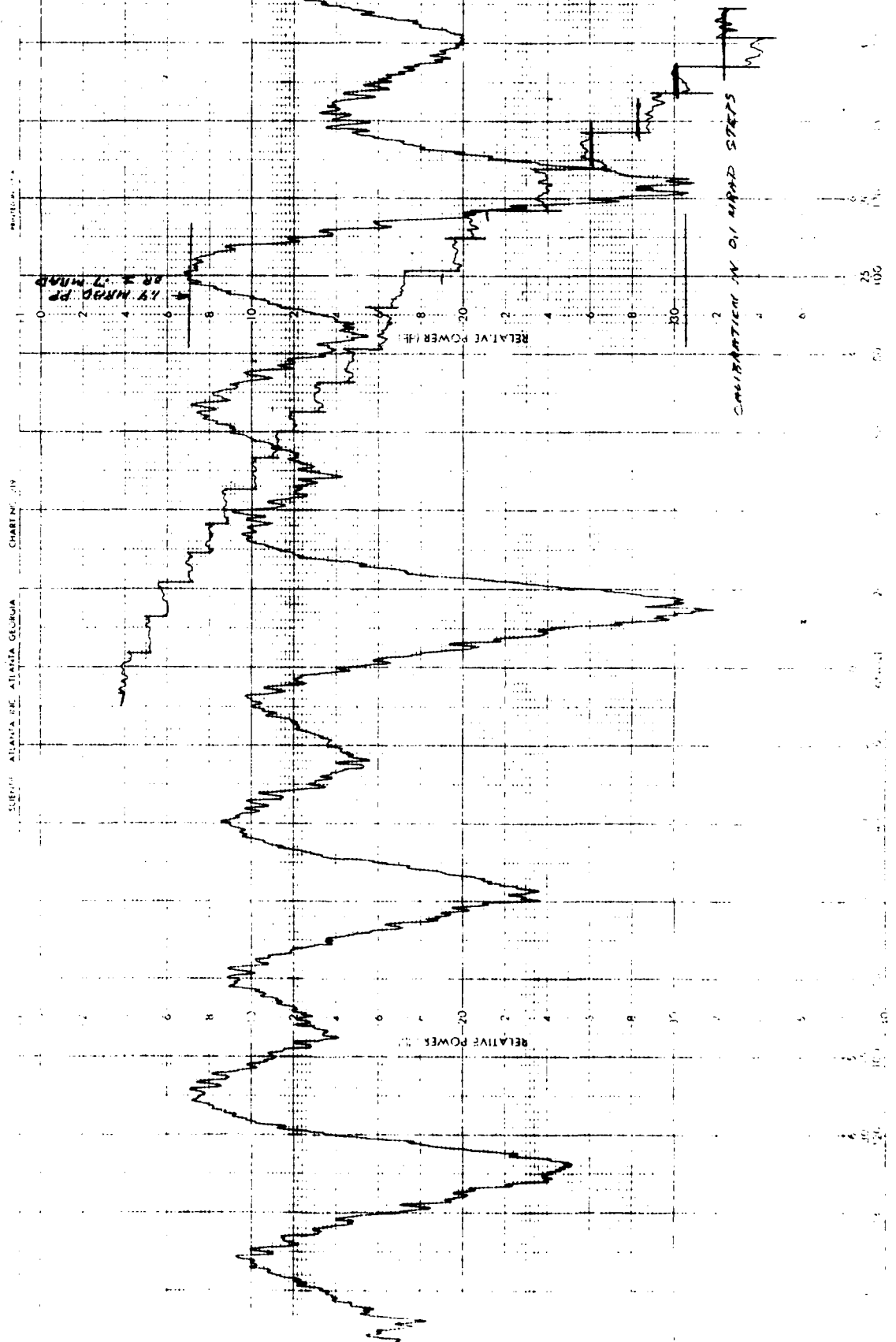


PROJECT 1586-C6
 REMARKS HIGH BAND 360° LOSS
 UNRELIABILITY RUN AT 30° EL ANGLE
 ENGR APPS RF TC
 DATE 24 AUG 51
 2936223



PROJECT 1886-06
 ENGR MRS RF TC
 DATE 24 AUG 81
 293622
 -39- REMARKS HIGH BAND 360 LOSS
 UNRELIABILITY RUN AT +30° EL ANGLE
 RADOME ON





209007

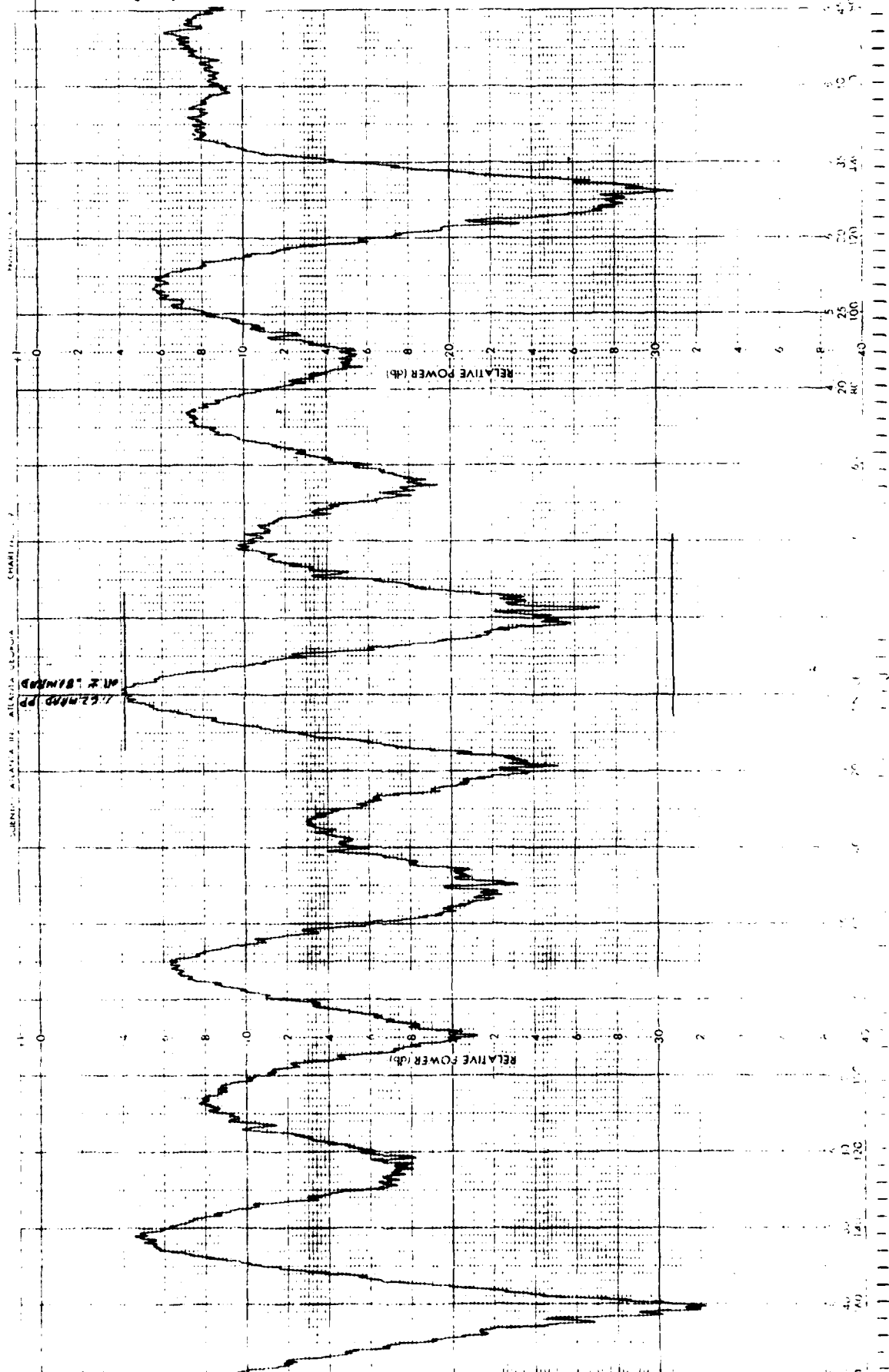
DATE 24 AUG 81

ENGR NTS RF TC

PROJECT 1886-06

-59- REMAINS HIGH BAND 300° DIRECTION

RUN AT -20° ELEVATION

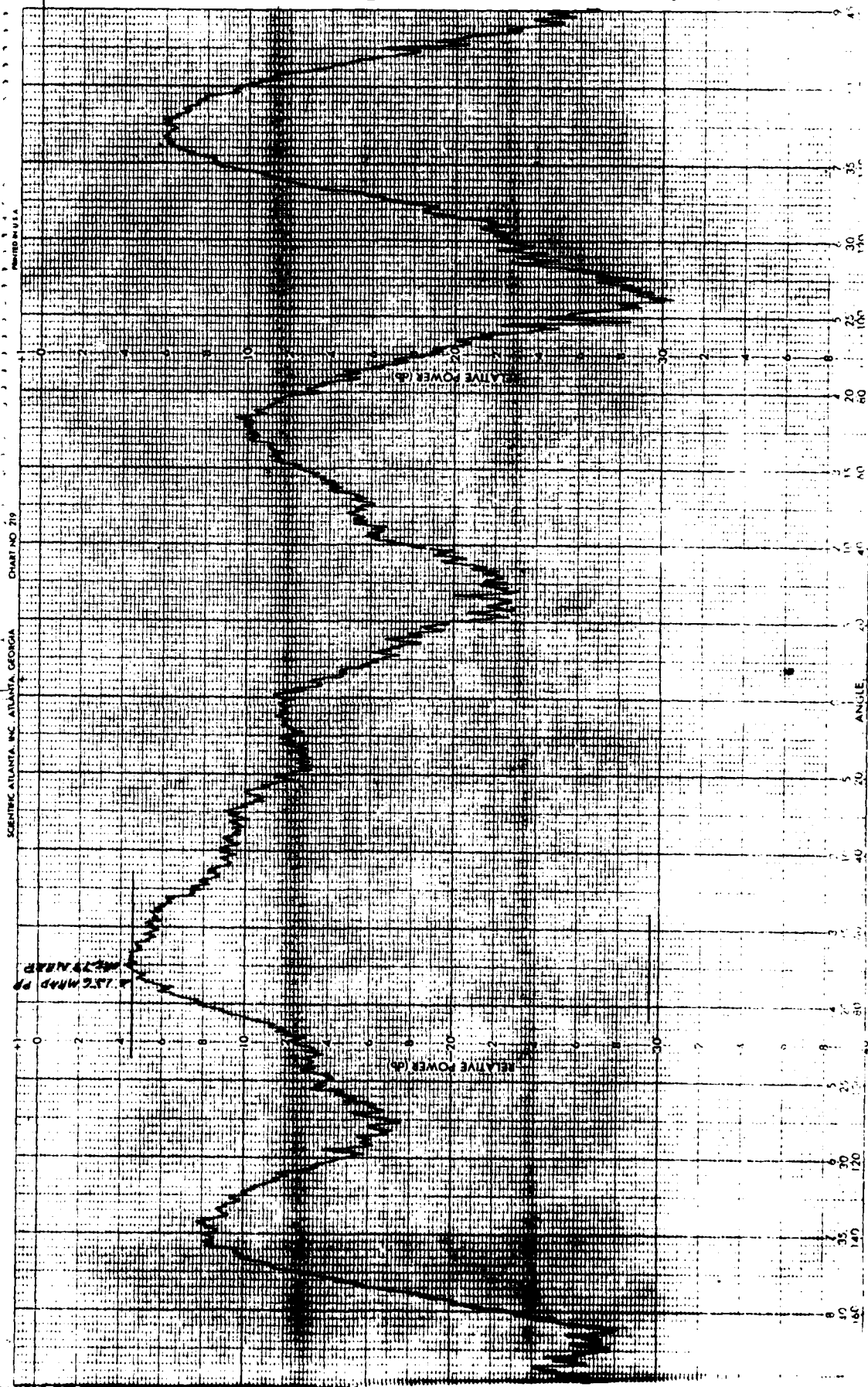


294006

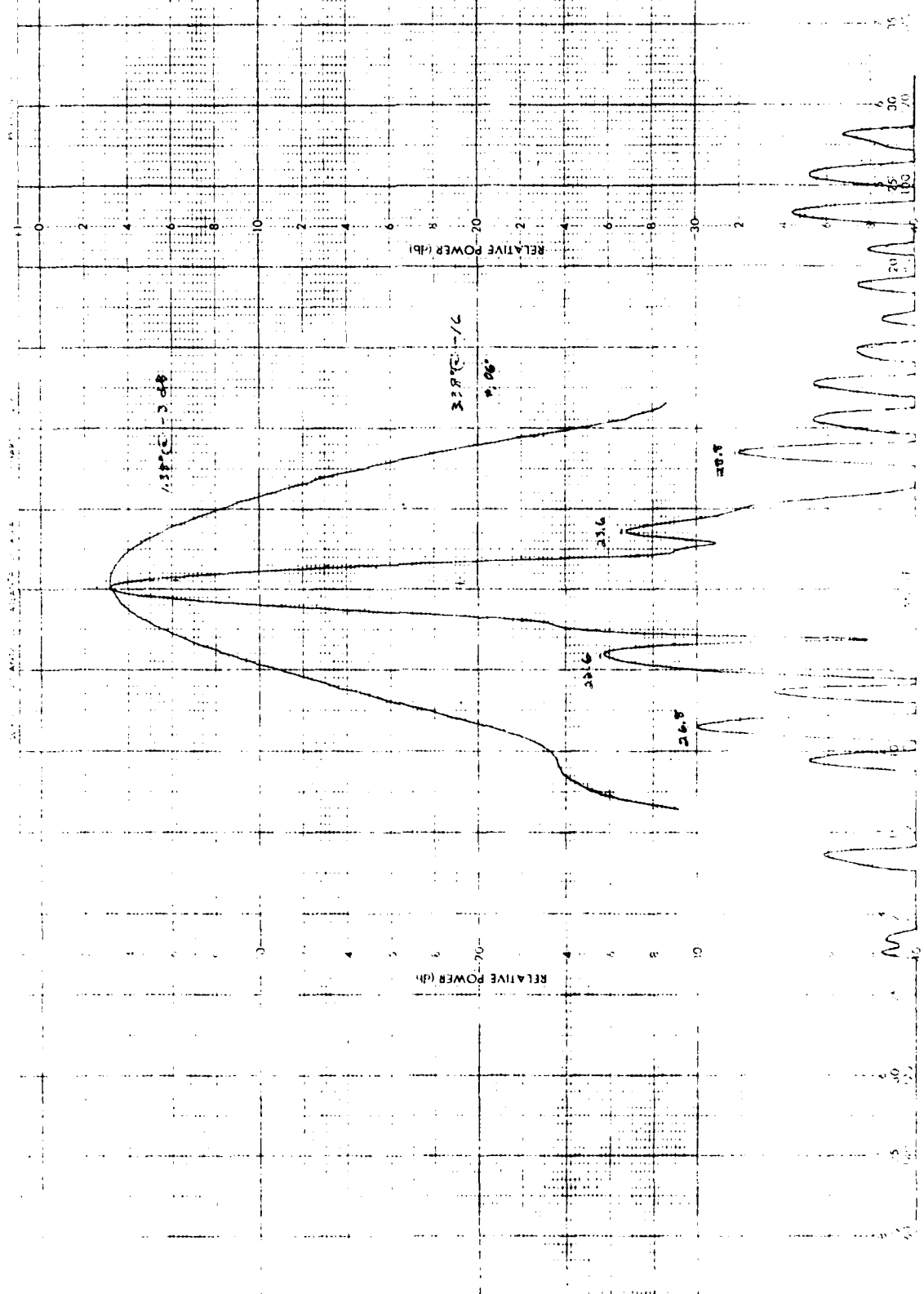
DATE 24 AUG 81

ENGR MPS MP TC

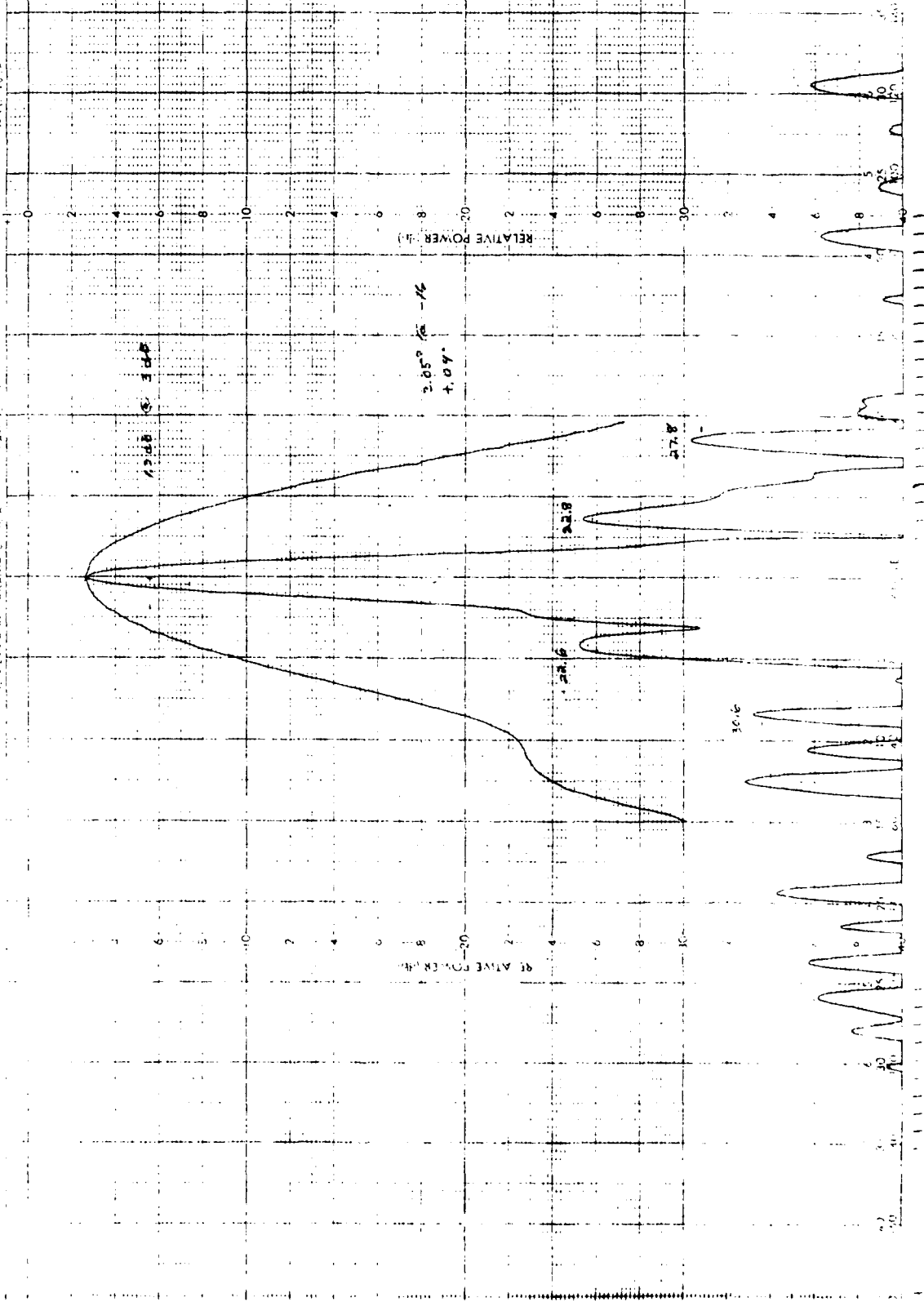
PROJECT 1986-06
REMARKS HIGH BAND 350° BINGEANT
RUN AT 720° EL ANGLE



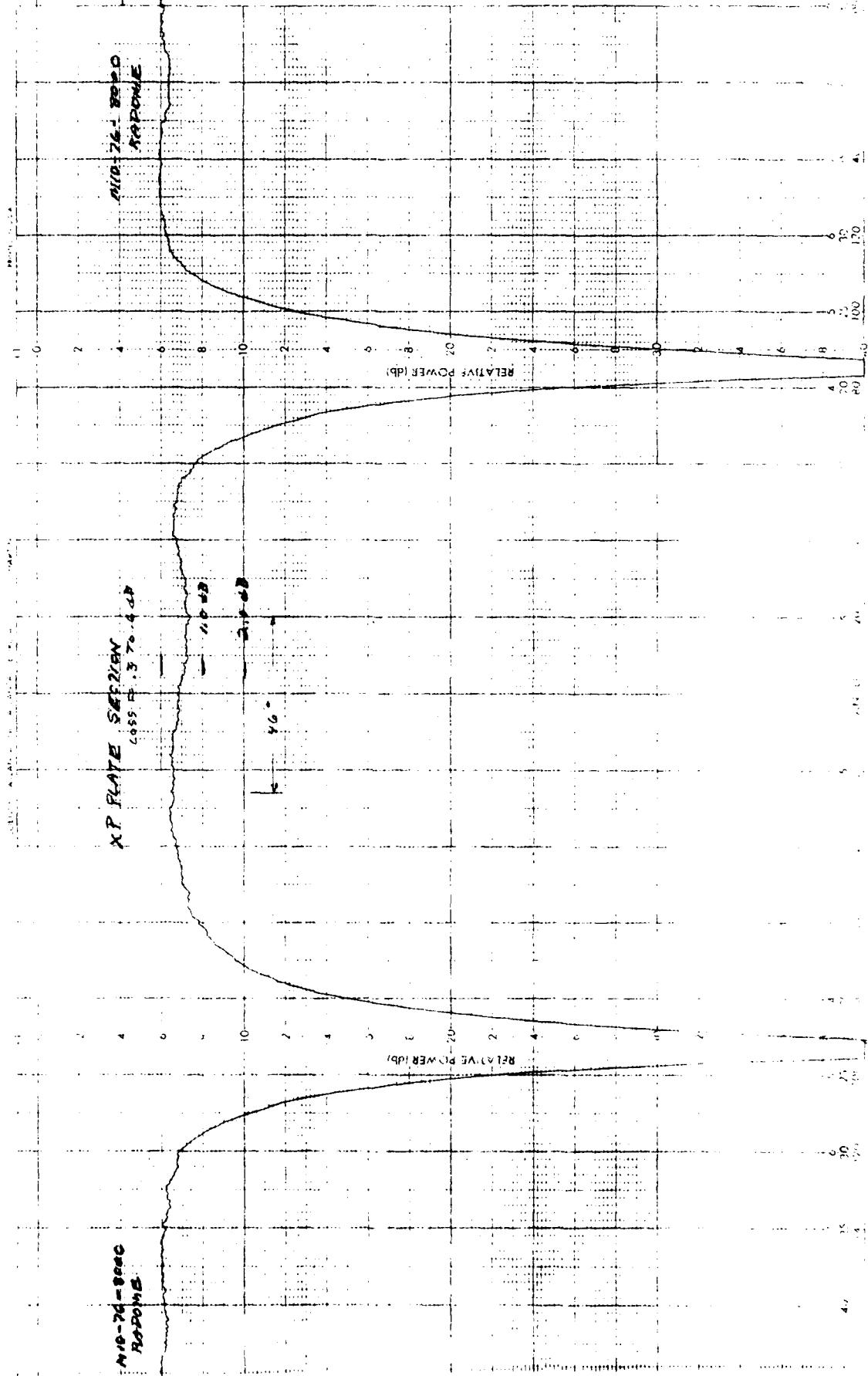
PROJECT 1986-06
 REMARKS MID BAND
 MID-26-8000 RADOME
 WITH XI PLATE SECTION
 0.42 0.42
 2139997



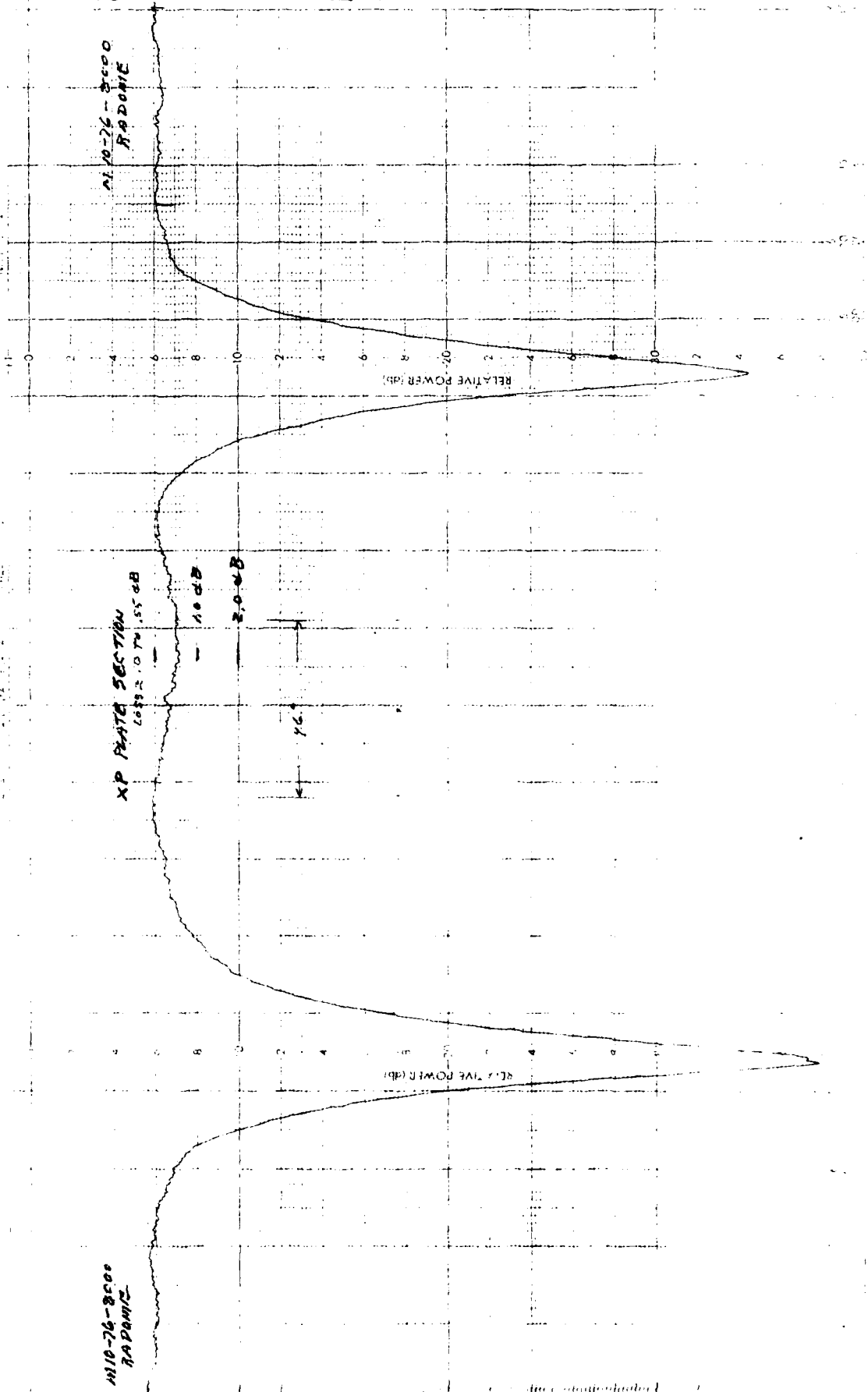
PROJECT 1586-06
 REMARKS MID BAND
 M10-76-800 RADONIE SECTION
 ENCLOSURE TC
 DATE 19 AUG 81
 253998



PROJECT 1886-C6
 REMARKS LOW BAND
 TX LOSS IN XP PLATE SECTION
 360° RADOME ROTATION
 ENR MP5 TC
 DATE 19 AUG 81
 29 000



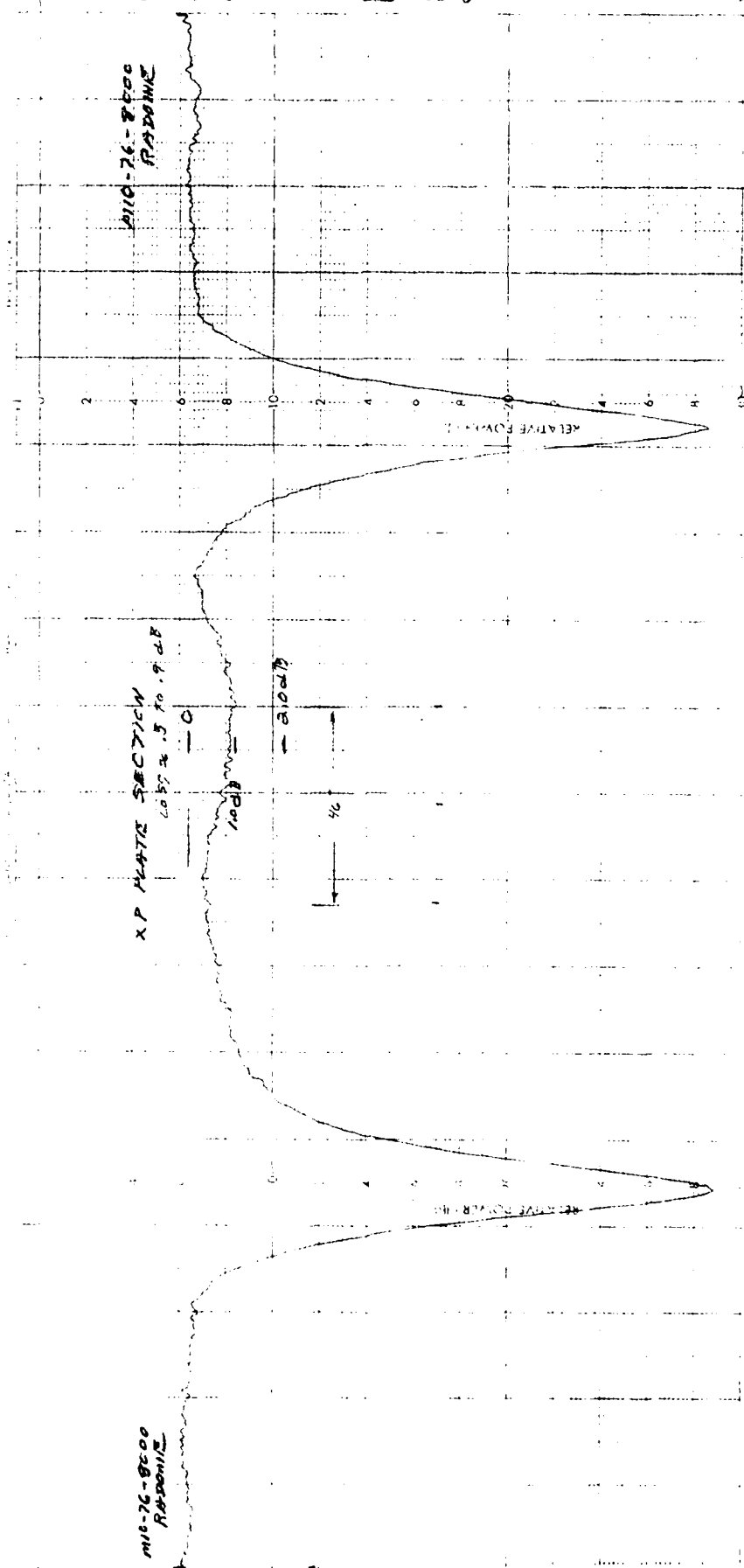
PROJECT 1586-06
 ENCR 475 TC
 DATE 19 AUG 51
 243999
 REMARKS: MID BAND PLATE SECTION
 260° RADCLIFF RETENTION



17- REMARKS HIGH END
- LOSS IN XP PLATE 5.71IN
360° RADOME RCTH71A

26 July 1968

100 11
DATE 9 DEC 81



DATE
FILMED
— 8